AN ANALYSIS OF PRIMARY AGRICULTURAL PRODUCTION IN KANSAS

by

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THE PROBLEM AND OBJECTIVES

Farm income in Kansas is subject to wide variation from year to year. Part of this fluctuation is attributable to changing prices and to changing livestock numbers. Another major cause of this fluctuation is the variability of crop yields due to weather change. Since the producer has little or no control over weather, additional information about aggregate production and yields over a long period of time should aid him in making production decisions.

Information about yield relationships between different crops should aid the producer in developing strategy which will enable him to cope with variability and permit him to remain in business. Yield correlations provide a basis for the evaluation of crop diversification as a means of reducing income variability.

In attempting to reduce income variability producers have adopted cultural practices which may or may not accomplish the intended purpose. Analysis of the results of cultural practices over a long period of time should permit an evaluation of their effectiveness in reducing variability.

This study did not attempt to measure the effects of variability of livestock income on total farm income. This important source of income was not included since the producer has greater control over secondary production than he does over primary production. Therefore, this study was limited to crop income variability and crop yield variability.

There were four objectives of this study: (a) to determine the variability of primary production in Kansas with respect to value and quantity, (b) to determine the variability of crop yields, (c) to determine the correlations between crop yields, and (d) to determine some of the effects of cultural practices on yield and income variability.

PROCEDURE

Two major sources of data were available for study of variability of farm income and crop production over a relatively long period of time. Long-time records kept by the Statistical Division of the State Board of Agriculture were available on a county basis. On a farm basis, records were available from Kansas farm management association members. Consecutive records were available for 287 farms from 1948 through 1959.

Long-time records on representative individual farms would be preferred as a source of data for studying variability of crop income and yields. However, very few records of this nature are available. County data as an available substitute tends to conceal differences in variability among farms and tends to underestimate variability on individual farms. Individual farm records were available for the 12-year period from farm management association members; however, these records cannot be considered as a representative sample drawn from the universe of Kansas farms. Association members tend to operate with above average management and larger than average farms. This leads to overestimation of average yields and crop income and may have some effect on variability of yields and income.

All county data were analyzed on a county basis without aggregation of counties. This was the basis on which the Statistical Division of the State Board of Agriculture collects its data and it was believed that variability would be better described without further aggregation.

In the analysis of value of crops harvested, a price index was used to remove the effects of price-level changes. This provided a basis for comparison of the aggregate quantity of crops produced as well as value of crops produced. The price index used was the one reported by the Statistical Division.

However, the all-crops price index was converted from a 1910-14 base to a 1957-59 base. Hereafter, indexed values will be defined as reported values which have been deflated by using the price index of all crops with the average of 1957-59 as the base year.

The number of farms per Kansas county was available from the agricultural census. Since data were not available for non-census years, a linear interpolation of the number of farms per county was made. This permitted calculation of the value of crops on a farm basis.

In the analysis of the data, five statistics were computed. Means, standard deviations and simple correlations were calculated.[1] Frequency distributions of annual values and yields were constructed. Average year-to-year changes were calculated by the following formula.

$$\sum \left| \frac{X_t - X_{t-1}}{n-1} \right|$$

In the formula X_t refers to the observed value in year t and X_{t-1} refers to the observed value in the previous year. The sum of the absolute values of change divided by one less than the number of observed values gives the average year-to-year change.

The analysis of value of crops harvested was limited to the period 1910 through 1959 as 1910 was the first year for which a price index was available.

Access to an electronic computer made it possible to undertake analysis of the mass of data which was available for this study. If only conventional computing equipment had been available for analyzing the data it would have been necessary to rely on samples drawn from the total population available.

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[1] For method of computation see any standard statistical text, e.g., Snedecor, G. W., Statistical Methods, Ames, Iowa State University Press, 1946.

After all relevant data were punched on data processing cards, analysis became a matter of sorting and aggregating cards before machine processing. Due to irregularities encountered in time series data, computer library programs would not satisfactorily compute the desired statistics. Therefore, it was necessary to develop machine programs[1] which would process the data.

Yield data for crops which were not grown in every county in the state, of course, were not available. For counties where yields were not available for the above reason, it became more convenient to assume zero yields. This assumption reduced the probability of error in processing cards prior to machine calculation but has required later editing of the final results. Those statistics containing the above assumption were included in subsequent tables, and in the following interpretation of tables attention has been called to every use of this assumption.

Data-processing accounting equipment was utilized for printing analysis results in table form. After results were listed with an IBM accounting machine, photographs of tables were made for inclusion in the thesis. This process for handling data eliminated the usual procedure of manual typing of results. It was anticipated that this procedure would lessen the probability of error in transferring data and would reduce the time spent on checking final results for arithmetical and copying errors.

Value of Field Crops Harvested by County

The average annual value over the 50-year period, 1910-1959, of all crops harvested by county ranged from a high of $9,386,902 for Reno County to a low of $776,654 for Wyandotte County, a small highly urbanized county

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[1] Currently used electronic computers require instructions for processing data which are commonly called machine programs.

(Table 1). South central counties as a group produced a higher value of crops than did any other area in the state. Counties in the central third of the state produced a higher value of crops than did either eastern or western Kansas counties.

Variation of values was greatest in southwestern and west central counties. In the southwest group of 14 counties, six counties had mean standard deviations of value greater than the average annual value. Of the nine counties in the west central group, four had standard deviations greater than the average value.

Finney and Ford Counties in the southwest region of the state illustrated a contrast in patterns of variability (Table 1). Separated spatially by only one county, each has produced approximately the same average annual value of crops. Ford County produced $5,451,432 compared to $4,903,062 for Finney. The standard deviations of these values were very similar, $4,357,493 for Finney County compared to $4,307,785 for Ford County. However, comparing the average year-to-year change of value, a wide difference is apparent with $3,252,108 for Ford County in contrast to $1,663,359 for Finney County. This would indicate a more erratic pattern of variability for Ford County compared to possible cyclical variability for Finney County. In Finney County poor crop years tend to be bunched and followed by a series of good crop years. This type of variability makes the problem of farm business survival more difficult.

A frequency distribution of the annual value of crops produced in Finney County shows that in 28 out of 50 years the annual value was less than the mean (Table 3). In 18 of the remaining years the annual value was greater than the mean value. Ford County shows a similar frequency distribution pattern with 27 years below and 17 years above the average value. All other counties in the Southwest with the exception of Morton show similar distributions skewed toward the lower values.

Moving across the state from west to east some of the skewness of the distribution of annual values of crops produced disappears. However, the anormal characteristic is evident in most counties in all areas of the state.

When the effects of price changes were removed from the data, the mean standard deviations of value of crops harvested were smaller in relation to the average annual values (Table 2). As has been previously explained, an index of all crop prices was used to convert crop values to the same price level. Since the average of 1957-59 was used as the base year, the index tended to inflate the recorded values. Even though conversion of the values to indexed values increased mean values, standard deviations tended to be smaller.

On an indexed basis four counties show standard deviations greater than annual average values of crops harvested. However, before indexing 10 counties showed deviations greater than mean values.

Frequency distributions of the indexed value of all crops harvested show a closer bunching of values around mean values than was shown by the distributions of value of crops in current dollars (Table 4). Since the standard deviations of indexed values are smaller, this was expected.

Value of Field Crops Harvested by Farms

The value of field crops harvested in each county was divided by the number of farms in the county. This gave the average value of crops harvested per farm.

When the average annual values of crops harvested per farm for the 50-year period, 1910-1959 were compared over the state, wide differences appeared. Value of crops per farm varied from $9,465 in Stanton County to $592 in Wyandotte County (Fig. 1). Value of crops per farm for the eastern third of the state, not including Wyandotte County, varied from $1,209 in Chautauqua County to $2,844 for Brown County. For the western third of the state values ranged from $2,813 for Norton County to a high of $9,465 in Stanton County. Brown County, with the highest average value of crops per farm in the eastern third of the state, produced only $31 more crops per farm than did Norton County, the county with the lowest value of crops per farm in the western third of the state.

More striking contrasts were apparent in comparing southwestern counties with southeastern counties. Average values of crops per farm were approximately four to five times greater for the southwestern counties than for southeastern counties.

Standard deviations of value of crops harvested per farm were highest in the western third of the state and lowest in the eastern counties (Fig. 1). In the eastern counties deviations of value from the mean were lower both absolutely and relative to means than were standard deviation in the western third of the state. For 14 of the counties in the western third of the state, deviations were greater than mean values. Greeley County had the greatest deviation of value of crops harvested per farm.

Greeley County also had the greatest year-to-year change in value of crops harvested per farm (Table 7). Over the 50-year period the average change from one year to the next of value of crops harvested per farm in Greeley County amounted to $5,903. All other counties in the western third of the state had average year-to-year changes of value of crops harvested which were greater than changes in eastern Kansas counties.

For the construction of frequency distributions of value of crops harvested per farm, the same intervals were used for all counties. The low value of crops harvested per farm in eastern counties compared to western counties was again apparent (Table 5). When 12 intervals were used, there was no eastern county with farm values above $8,500, the midpoint of the distribution. In western counties there was more of a tendency for annual values to fall in all intervals. Frequency distributions of value of crops per farm tended to be skewed toward lower values. This characteristic was most obvious in western counties.

In Greeley, Grant and Stanton Counties, frequencies of value of crops per farm were either in the lowest intervals or the highest intervals with few years in the intervals around the one containing the mean value. Stanton County had an average value of crops per farm of $9,465 for the period 1910-1959. In 30 of these years values per farm were below $4,000 and in 12 years values were $16,000 or greater. An average crop tended to be an exception with either good crops or almost none as the most frequent occurrences.

When the value of crops harvested per farm was adjusted to remove the effects of price-level change, mean values were increased as has been explained above (Fig. 3). However, deviations from mean values were decreased with only Greeley, Hamilton, Stanton and Wichita Counties showing standard deviations greater than average annual values.

Indexed values of crops produced might be considered as a measure of the aggregate quantity of crops produced. Therefore, the value of crops produced per farm measured in current dollars was compared to the indexed value of crops produced per farm. As has been stated, deviations of indexed values relative to mean indexed values were smaller than deviations of values measured in current dollars relative to current mean values. This shows that value of crops produced per farm varied more than aggregate output per farm.

In most counties of the state the average year-to-year change of value of crops harvested per farm was greater when measured in indexed dollars than when measured in current dollars (Table 7). However, change was not greater in those counties where standard deviations of average values per farm were approximately as great as average values.

Interpretation of the tendency for average year-to-year changes to be greater when measured in indexed dollars than when measured in current dollars was not readily apparent. One explanation was that the choice of a base year for the index of crop prices tended to cause indexed values to be increased over current values. Increased current values would tend to increase year-to-year changes.

Frequency distributions of the indexed value of all crops harvested by farm show a tendency for values to be more closely bunched around mean values than were distributions of farm values in current dollars (Table 6). Indexing of values moved frequencies of occurrence from the lowest interval of $0-999 to the next interval of $1000-2499. The movement from the lowest interval to the next higher interval occurred in all counties in the state but was most obvious in counties in the eastern third of the state. Indexing of values did not cause a pronounced movement of occurrences from extreme values at the higher end of the scale. This was again due to the choice of a base year for the index of crop prices. Since a high proportion of the high values occurred during the 1950's and the years 1957-1959 were chosen as the base years for the index, current values and indexed values were similar.

Value of Field Crops Harvested Per Acre

The average value of field crops harvested per acre during the period 1910-1959 shows considerably less variability among counties than does value of crops per county or per farm. Considering all counties in the state, values per acre varied from $12.91 per acre in Hodgeman County to $35.40 in Wyandotte County (Fig. 2). Considering the degree to which Wyandotte County is urbanized, the second from highest county might more correctly show the range of value of crops per acre. Doniphan County with $27.54 was the county with per acre values next under Wyandotte County.

Differences between per acre values of crops harvested were not great when comparing groups of counties. Values of crops per acre in southeastern counties were in the range of $15.45 to $18.57. In southwestern counties acre values of crops harvested ranged from $12.91 to $19.40.

Standard deviations of per acre values of crops harvested were approximately one-half of mean per acre values in the eastern third of the state. Deviations relative to means increased to about three-fourths of mean values in the western counties. Greeley County with a deviation 92 per cent of the mean values showed the greatest variability of value of crops harvested per acre.

The average year-to-year change of value of crops harvested per acre was in the range of $4.32 to $7.34 per acre for western Kansas counties (Table 7). The year-to-year changes of value per acre were slightly less for central counties than for western counties. For the central one-third of the state the range was from $3.73 to $7.09 per acre. Year-to-year changes were still less for the eastern one-third of the state, where changes were in the range of $2.90 to $7.09 per acre. Most eastern counties had average year-to-year changes of about $3.50 to $5.00 per acre.

Distributions of the annual value of crops per acre show the frequency of crop failure or near crop failure in western counties (Table 8). In the northwest group of counties, six of the eight counties harvested less than

$4.00 worth of crops per acre in 10 or more of the 50 years. For west central counties, as many as 15 of the 50 years showed an annual value of crops per acre of less than $4.00. The tendency for very low values was not so pronounced for the southwestern counties; however the interval $4.00 to $7.99 per acre contained a disproportionately large number of occurrences.

Very low values of crops per acre occurred less frequently for the remainder of the state. Yet values lower than mean values were more frequent occurrences than were values higher than mean values.

Indexed values of crops harvested per acre show approximately the same differences between groups of counties as did acre values in current dollars (Fig. 4). Southeastern counties had indexed values of $19.27 to $22.93 per acre and southwest counties ranged from $16.03 to $24.14 worth of crops harvested per acre.

Similarities among counties when comparisons of indexed per acre values are made are more apparent than differences among counties. More counties fall in the range of $18.00 to $24.00 per acre than are outside this range.

When frequency distributions of indexed values of crops harvested per acre were compared to distributions of values in current dollars, it became apparent that part of the explanation of very low acre values in western counties was due to low prices (Table 9). Upon indexing acre values there was a tendency for frequencies to occur in higher intervals with fewer crop failures or near crop failures apparent.

Frequency distributions of indexed values of crops per acre showed more normal characteristics than did distributions of values in current dollars. Correction of the skewness of the distributions was greater for eastern Kansas counties than for the remainder of the state.

Gross Value of Crops Harvested from Farm Management Records

Records of the value of crops produced per crop acre were available from 287 farm management association members. Data were available for the period 1948-1959. In most cases these accounts represented continuous records of crop values over the 12 year period. However, for associations five and six records were not available for all farms for 1948-1949. Since all farms did not have 12 complete records a count was made of the number of observations of data where an observation is defined as one recording of value for one year on one farm.

Association one had the highest average gross value of crops harvested with $39.13 per acre compared to $19.86 per acre for association five (Table 10). Associations in the eastern and central parts of the state had average gross values of crops per acre in the range of $31.56 to $39.13 compared to $19.86 and $20.75 per acre for the western third.

While not directly comparable because of the differences in time periods, it appears that farm records show greater differences of per acre crop values between areas of the state than were exhibited by county data. Standard deviations show a pattern consistent with county data as both sources of data show deviations relative to means greater in western counties than in central and eastern counties.

Average gross values of crops harvested seemed to have no relationship to average year-to-year changes of value (Table 10).

Value of Crops Related to Size of Farm

The value of crops produced per acre does not vary among counties to the extent which the value of crops per farm varies. As has been stated, the value of crops per farm in southwestern counties is from four to five times greater than the value produced per farm in southeastern counties (Fig. 1). Comparing the value of crops per acre for the same two areas, very little difference has been shown (Fig. 2).

It was concluded that the differences in the value of crops harvested per farm depended to a much greater extent on the number of crop acres per farm than on differences in per acre value. For 1954 the 14 southeast counties had an average of 1518 farms per county compared to 510 farms per county for the 14 counties in the southwest region. This indicated approximately three times as many farms per county in southeast counties as in southwest counties.

Southwest counties had more acres in crops than did southeastern counties. However, for 1954, the 14 southwest counties harvested an average of only 42 per cent more acres per county than did the 14 southeast counties. The lack of difference further supported the hypothesis that the differences in value of crops harvested per farm resulted from differences in the size of farm rather than from differences in the value of crops per acre or proportion of the farm in cropland.

Crop Production Costs

Crop production costs for farm management association member farms were available for only the four years, 1956-1959 with no cost data available for association five.

Crop costs per acre were highest in association six where farms tend to be small relative to farms in other areas of the state (Table 11). Differences among associations were not great with the exception of association three where crop costs per acre were approximately one-half that of other associations.

No consistent relationships were apparent between gross value of crops harvested and crop costs with the exception of the general tendency for both value and cost to be higher for the eastern two-thirds of the state.

Net Value of Crops Produced

Since crop costs were available for only 1956-1959, it was not possible to determine the net value of crops per acre for the entire 12 year period for which records were available. Net values of crops per acre showed a tendency for associations to fall in one of two groups (Table 12). Associations two and four were similar with net values of $15.70 and $16.18 per acre. The remaining associations had net values between $9.54 and $10.89 per acre.

Within associations net values varied more than did gross values or crop costs. This was expected since the net value of crops per acre was the difference between two variables.

Extent of Irrigation on Farm Management Association Farms

In attempting to determine the effects of irrigation on variability of value of crop production, farms were classified as farms with no land irrigated and farms with some land irrigated. The extent of irrigation on each farm was not known as association members did not report this data.

Of the 287 farms available for this study, 45 had used some irrigation. Out of the 12 crop years irrigation had been practiced for an average of four years or less on association farms.

This sample of irrigated farms was probably too small and covered too short a period of time to provide a basis for any conclusions about the effects of irrigation on crop and income variability. However, the results available may be indicative of some of the effects of irrigation.

Effects of Irrigation on Value of Crops

Without exception the average gross value of crops per acre was higher on farms with some land irrigated than on farms with no land irrigated (Table 10). Whether the higher values should be attributed to irrigation was not known.

With the exception of southwestern counties, irrigation is usually associated with river valley land. If farms in the sample were in river valleys, the higher gross values may have resulted from factors other than irrigation.

The variation of gross value of crops harvested on irrigated farms was greater over the period of years than for non-irrigated farms; however, deviations relative to means were not significantly different.

With the exception of association 6 with only two irrigated farms, crop costs per acre were higher for farms with some land irrigated than for dry land farms (Table 11). For associations one, two and three crop costs averaged about $5.00 per acre higher on farms with some land irrigated than on farms with no land irrigated.

The net values of crops produced showed no consistent relationships (Table 12). Two associations showed higher net values with irrigation, one showed lower value and one association had almost the same net values for irrigated as non-irrigated farms. However, the variation of the net value of crops per acre was less for irrigated farms than for non-irrigated farms.

Wheat Yields

Yields of most major crops grown in Kansas were available for the past 73 years. Because of rapid changes in crop varieties, changes in use of fertilizer and other crop production practices, the period for analysis was limited to the most recent 23 years, 1937-1959. During the 23 years the state emerged from a prolonged drought, was favored with a series of years with above normal rainfall in the 1940's and again encountered drought during the mid-1950's. Since it would be difficult to find what might be called a period of normal weather for the state, a series of years of about equal numbers of years with above average and below average rainfall was used for this study of crop yields.

Wheat yields were higher in eastern Kansas than in the western part of the state (Fig. 5). The highest average yields as shown by county data for the period 1937-1959 were in the northeast corner of the state and in those counties which include the Kaw River valley. Counties with lowest yields were in the west central and southwest regions of the state.

Variations of annual wheat yields per acre harvested as shown by standard deviations relative to mean yields were greater in the western third of the state than in the eastern third. Standard deviations varied from about one-third of mean yields in the eastern counties to over one-half of mean yield in west central and southwest counties.

Average wheat yields were lower for western Kansas counties, but the average year-to-year change of yields in western Kansas was greater than for yields in eastern counties (Table 13).

Greater differences between wheat yields per acre harvested and yields per acre seeded were found in western counties than in the eastern counties (Table 13). The extent of abandonment of seeded acres would explain the higher standard deviations and the higher average year-to-year changes of wheat yields per acre seeded than for yields per acre harvested.

The problem the farmer faces of knowing what yield coeffients to use in farm production planning was illustrated by a frequency distribution of annual wheat yields (Table 14). The tendency for yields to be distributed over all intervals with little bunching of occurrences around the interval containing the mean value shows the kind of uncertainty which farmers must take into account when making production plans.

Since wheat is the most important crop grown in Kansas a comparison was made between the frequency distributions of the value of all crops harvested per acre and distributions of wheat yields (Tables 8 and 14). The lack of correspondence of time periods for the two distributions makes direct comparison somewhat questionable. However, tendencies may be observed.

There was less of a tendency for wheat yields to fall in extreme intervals than for values of crops to fall in the high and low intervals. Frequency distributions of yields per acre harvested did tend to be skewed toward lower yields but less so than for distributions of value of all crops harvested.

Wheat yields on farm management association farms showed differences among groups of counties similar to those shown by county data (Table 15). Yields were highest in eastern counties and tended to decrease across the state to lowest yields in western counties.

The year to year variations of wheat yields were not greatly different when association yields were compared to county yields. Both sources of data showed deviations relative to mean yields greater in the western counties than in central and eastern counties.

Wheat on Fallow Yields Compared with Continuous Wheat Yields

Wheat producers in the western two-thirds of the state have adopted the practice of growing part or all of the annual wheat crop on land which was fallowed the previous year. This practice permits the build-up of sub-soil moisture prior to time of seeding the crop. With greater sub-soil moisture, yields should be higher and variation of those yields from year to year should be less.

In evaluating the profitability of this strategy for increasing farm income from wheat, the receipts from two years of continuous wheat would be compared to one year's production of wheat grown on fallow. For fallowing to be profitable it would not be essential that receipts be twice as great from an acre of wheat on fallow than an acre of continuous wheat. If the costs of producing the one crop, including fallowing costs, were less than the costs of producing two consecutive crops, wheat on fallow could show higher net returns even with fallow yields less than twice as great as continuous yields.

This study did not attempt to determine costs or returns for producing wheat under the two different practices. However, this study did attempt to compare average yields and the variability of yields using the two systems of production during the 13 year period for which data was available, 1947-1959.

Wheat grown on fallow showed higher yields per acre harvested than did wheat grown continuously. Yields from wheat on fallow were as much as 80 per cent greater than yields of wheat grown continuously in western-most counties (Table 16). In all counties wheat-on-fallow showed higher yields than wheat grown continuously. Differences were greater for the western one-third of the state and tended to decrease as the distance from the western border of the state increased.

When standard deviations of wheat yields per acre harvested were compared for wheat on fallow with wheat grown continuously, deviations were smaller for continuous wheat (Table 16). Since yields were higher for wheat grown on fallow than for continuous wheat, deviations could be compared as a percentage of mean yields. When variability was related to the level of yields, wheat grown on fallow showed less variability than wheat grown continuously. However, several counties continued to show less variability for continuous wheat when variability was related to the level of yields.

Variability as measured by the average year-to-year change of annual yields was greater for continuous wheat than for wheat on fallow when change was related to the level of yield. Moreover, in several western counties the year-to-year change was greater for continuous wheat without taking into account the level of yield.

The practice of planting wheat on fallowed land reduced the percentage of seeded acres that were abandoned, especially for counties in the central one-third of the state. In several counties, the percentage of the seeded acres abandoned was so small that yields per seeded acre and per harvested acre were the same for wheat planted on fallowed land. There were no instances of the same yields for any county when yield per seeded acre was compared to yield per harvested acre when wheat was grown continuously (Tables 16 and 17).

Because of the higher proportion of seeded acres abandoned in the western third of the state, greater differences between variations of yields per acre seeded and per acre harvested were apparent than for the central third of the state. As has been stated, planting wheat on fallow has reduced abandonment. However, in all but a few counties yields per seeded acre showed greater variation than did yields per harvested acre regardless of whether wheat was on fallowed land or was raised continuously.

Grain Sorghum Yields

Grain sorghum yields per harvested acre were highest in northeast and east central Kansas counties for the period 1937-1959 (Fig. 6). In general, yields tended to decrease as the distance from the Missouri border increased. An exception to this general observation was for grain sorghum yields to be about as high for southwest counties as for south central and southeast counties. Over the state, county average yields ranged from 26.6 bushels to 13.0 bushels per acre.

Variation of grain sorghum yields expressed in bushels per acre did not decrease to the same extent that average county yields did when comparing eastern counties with western counties (Fig. 6). Since deviations did not decrease to the same extent as average yields, deviations when related to the level of yields showed greater variation of annual yields for western counties than for eastern counties.

Greater variation of grain sorghum yields for western counties than eastern counties also was shown by the average year-to-year change of yields (Table 19). Eastern counties with higher average yields, for the period 1937-1959, than western counties had approximately the same average changes of yield as did western counties.

Frequency distributions of grain sorghum yields showed characteristics similar to distributions of wheat yields (Table 18). Over the 23 year period there was little tendency for yields to bunch around mean yields. Rather than showing a clustering around the mean yield, occurrences were distributed in most intervals. For the western third of the state a disproportionate number of years showed very low yields.

In the construction of frequency distributions of grain sorghum yields, the same intervals were used for all counties in the state. Since yields were higher in eastern counties this led to a lack of centering of distributions in some counties. However, this procedure may have more vividly illustrated the differences in yields for different regions in the state.

Grain sorghum yields were higher on farm management association member farms than for all farms in the county. Even though the two time series do not directly coincide the same pattern of averages and variations of yield was shown by farm data as was shown by county data. Average yields of grain sorghum were higher and variations, when related to the level of yields, smaller for the eastern and central associations than for the western associations (Table 15).

Soybean Yields

Soybeans have not been grown extensively in all counties in the state. Some data was available for all counties in the state, but complete data was available for only the eastern third of the state.

As has been explained previously, it was more convenient to assume zero soybean yields for those counties where yields were not available for every year from 1937-1959. Counties with soybean statistics shown in Tables 19 and 20 but not showing average yields in Fig. 7 should be recognized as counties where soybean data was not complete.

Soybean yields for the period 1937-1959 varied from 9.1 bushels in Harper county to 15.1 bushels per acre in Doniphan county (Fig. 7). Variations of average yields were within the range of 3.6 to 5.5 bushels for all counties with complete data. Average year-to-year change of soybean yields for these same counties was from 2.8 bushels to 5.3 bushels (Table 19).

Frequency distributions of soybean yields for eastern Kansas counties showed a tendency for yields to bunch more closely around the mean yield for the period than was shown by distributions of wheat and grain sorghum yields (Table 20). Occurrences of soybean yields in the 0-3.9 bushel interval for those counties in the western and central part of the state were indicative of one of two events. Average yields were either below four bushels per acre or an insufficient number of acres of soybeans were grown in that county for calculating average yields for the year.

Average soybean yields calculated from farm management association member farms were not subject to the same limitations as apply to county data. Yet because of the small number of observations of yields in all associations except four and six the data could only be considered as indicative of averages. Soybean yields from farm records for the period 1948-59 for association four and six were higher than soybean yields shown by county data for the period 1937-1959 (Table 15). Farm yields though higher than county yields show the same tendency for yields to be higher in northeast counties than southeast counties.

Corn Yields

Average corn yields per acre harvested, for the period 1937-1959, follow the same general pattern over the state as was shown by wheat yields (Fig. 8). Average county yields of corn were highest in northeast counties and tended to decrease as distance from the eastern Kansas border increases. In the eastern third of the state average corn yields were lowest in the southeast counties, but the low yields were higher than yields for the central and western parts of the state.

Variation of corn yields was less in eastern counties than in central and western counties both in bushels when related to the level of yields and in absolute bushels. Of the four crops discussed to this point, wheat, grain sorghum, soybeans, and corn, the latter showed the greatest yield variability from year to year.

Because of abandonment of some corn acreage in some years, yields per acre seeded showed greater variability than was shown by yields per acre harvested. (Table 21). In some southwest counties standard deviations of yields of corn per acre seeded were greater than average yields.

Frequency distributions of corn yields per acre harvested showed a disproportionate number of years with low yields for the western one-third of the state (Table 22). In all counties in the western one-third of the state from four to seven years of the 23 showed yields with failures or near crop failures. Corn yields in eastern counties followed a more random pattern which exhibited more the characteristics of a normal distribution.

Corn yields were available from farm management association members for the 12 year period 1948-1959. Yields per acre harvested from farm records were not greatly different for associations one, four and six (Table 15). However, yields as shown by county data tended to be lower for those counties located in associations one and six relative to counties in association four.

Average corn yields from farm records were similar for associations one, four and six, but variations of those yields were unlike. Variation for those three associations when related to the level of yield was greatest for association one and least for association four.

Oats Yields

Average county oats yields per acre harvested followed a pattern similar to wheat yields (Fig. 9). Oats yields were highest in eastern counties, particularly northeastern counties and were lower in southwestern counties. For the state, yields ranged from a high of 29.9 bushels in Brown County to a low of 12.2 bushels in Stanton County.

Yearly variations of county yields were greater in western counties than in eastern counties. Whereas average oats yields followed a pattern over the state similar to average wheat yields, variations of oats yields followed a pattern similar to the variation of corn yields. However, variation of oats yields was not as great as variation of corn yields for western counties.

Differences between yields per acre seeded and per acre harvested were greater for oats than for wheat (Tables 13 and 23). This indicated a greater degree of abandonment for oats than for wheat. Moreover, the tendency for a higher proportion of acres seeded to oats to be abandoned was shown for central and eastern counties as well as western counties.

Frequency distribution of oats yields show yield characteristics similar to distributions of wheat yields (Tables 14 and 24). Oats yields tended to be distributed in all intervals. Very low yields occurred more frequently in southwestern counties than for the remainder of the state.

Barley Yields

In general, barley yields per acre harvested showed differences between counties similar to those shown by oats yields. Barley yields were higher in eastern counties than in western counties (Fig. 10). Barley yields showed smaller differences between northeastern and southeastern counties than was shown by oats yields. In almost all counties of the state barley yields were lower than oats yields.

Variations of yield when related to the level of yields showed smaller variations for barley yields than for oats yields. The tendency for barley yields to show less variation than oats yields was more apparent in western than eastern counties where there was very little difference between variations of the two crops.

Barley yields per acre seeded varied more than did yields per acre harvested (Table 20). A higher proportion of acres planted to barley were abandoned than were acres planted to wheat. This was shown by greater differences for barley than for wheat between yields per harvested acre and per seeded acre for the two crops (Tables 13 and 25). Differences between yields per seeded acre and per harvested acre are more similar for oats and barley than for wheat and barley or wheat and oats. This indicated a greater tendency for oats and barley to be abandoned prior to harvesting than for wheat to be abandoned.

Frequency distributions of barley yields per acre harvested were similar to distributions of oats yields.

Alfalfa Hay Yields

Basic hay yield data was subject to greater limitation than yields of other crops. Since few farmers actually weigh the hay that is produced, data represents estimates of yields which are subject to error. A second limitation applies to the basic data for Greeley, Haskell, Morton, Seward, Stanton and Stevens Counties. For the period 1937-1946 alfalfa acreage was so limited that alfalfa yields were not reported for every year for the six counties. In the computation of averages and standard deviations for alfalfa yields in the six counties zero yields were assumed for years when data was not available. This procedure has biased averages downward.

Alfalfa hay yields showed patterns of variation over the state different from that shown by grain crops (Fig. 11). Hay yields were highest in west central counties and in counties traversed by the Kaw River. Southwest counties had the lowest yields in the state, but yields shown are subject to the qualification explained above. Not including southwest counties, similarities of hay yields over the state are more apparent than differences.

Again excluding southwest counties, yearly variations of alfalfa hay yields showed little difference between counties. For a comparison of variations of different crops, alfalfa hay yields showed less variation for the state as a whole than was shown by grain crops.

Less variation for alfalfa hay yields than for other crops may be in part explained by the limitations of the data as described above. The relatively low variation may be the result of errors in estimating yields.

Frequency distributions of alfalfa hay yields also illustrated the tendency for hay yields to vary less than yields of grain crops (Table 27). For west central and southwest counties occurrences in the lowest interval were the result of no data rather than low yields.

Records from farm management association farms showed highest alfalfa yields for association five which includes northwest Kansas counties (Table 15). For all associations alfalfa yields ranged from 1.71 to 2.36 tons per acre for the period 1948-1959.

Variations of alfalfa yields were greater when determined from farm records than from county data. County data for alfalfa yields showed deviations approximately one-fourth average yields for all counties except extreme southwest counties. Farm records showed deviations of alfalfa yields about one-half mean yields.

Silage Yields

Silage yields were available from farm management association member farms for a 12 year period 1948-1959. On member farms silage crops were grown for an average of 5.9 years in association three to an average of 8.5 years in association two (Table 15). Silage yields ranged from 6.3 tons per acre in association five to 9.1 tons per acre in associations one and four.

When variation of silage yields was related to the level of yields, associations two and four showed less variation of yields from year to year than was shown for the remaining associations.

Considering the six crops grown on farm management association member farms, silage, corn, and grain sorghum yields showed similar variability

(Table 15). Wheat, soybeans and alfalfa yields were less variable than silage yields.

Methods Used for Calculating Correlations of Crop Yields

Both sources of data, farm management association records and county data were utilized for the computation of correlations of crop yields. Crop yields per acre harvested were used for determining correlations of yields by county for the period 1937-1959. Yield data was available for wheat, corn, grain sorghum, alfalfa, barley, oats and soybeans. Except for soybeans data was complete for all counties for all years. As has been previously explained zero soybean yields were assumed for those counties for which data was not available. Therefore, correlation of soybeans with all other crops should be disregarded for all counties not showing soybean yields in figure seven. In general only those counties in the eastern one-third of the state had sufficient data for calculating reliable soybean statistics. This limitation applied only to correlation coefficients in Table 29.

Correlation coefficients of crops grown on farm management association member farms were computed by two different methods. Since no farm grew all six crops for every year of the 12 year period a method was needed for utilizing the existing data.

For computing the correlation of any two crop yields, data was included in the statistic for only those years when both crops were grown on the same farm for that year. This made it necessary to compute new sums, sums of squares and sums of products each time a crop yield was correlated to a different crop on the same farm.

One method of aggregating farms was to add the correlation coefficients for two crops calculated for all farms and divide by the number of coefficients giving what has been termed an average correlation coefficient per farm (Table 28). The number of observations of paired yields as well as the number of farms was shown (Table 28).

The second method for calculating correlation coefficients for two crops grown in an association was to add for all farms the sums, sums of squares, and sums of products as calculated for each farm before computing the coefficient. When this method was used sums, sums of squares and sums of products were calculated by the same method as described above.

Correlations of Crop Yields

As was stated above, correlation coefficients of crop yields were calculated for wheat, grain sorghum, alfalfa, soybeans, corn, oats, and barley with county yields as the source of basic data.

Assuming that time-series data could be considered as sample data, coefficients were tested for statistical significance. With 21 degrees of freedom for county data coefficients greater than .413 were significant at the 5 per cent level. Coefficients above .526 were significant at the 1 per cent level of significance. Stated another way correlations greater than .413 were significant unless a one-in-twenty chance had occurred in sampling.

The over-all analysis of crop correlations showed that some crop yields were significantly correlated in most counties of the state (Table 29). Corn and grain sorghum yields as well as corn and alfalfa yields were significantly correlated in every county in the state for the 23 year period. Grain sorghum and alfalfa yields, wheat and barley yields, and oats and barley yields were correlated in all but eight or fewer counties.

Crop yields which were correlated in only one-fourth or fewer of the counties were: wheat and alfalfa, grain sorghum and oats, alfalfa and oats, alfalfa and barley, corn and oats, and corn and barley.

Wheat and grain sorghum yields tended to be correlated in most counties except in the central, south central and southeastern regions of the state. Wheat and corn yields were correlated in the western third of the state with four counties in the north central group of counties also showing significant correlations. With some exceptions wheat and alfalfa yields were correlated in only the western third of the state. Wheat and oats yields tended to be correlated in eastern and western counties but not in the central one-third of the state.

Table 30. Number of Kansas counties with significant correlations between crop yields. Coefficients were calculated from county data for the period 1937-1959.

	Grain Sorghum	Alfalfa	Soybeans	Corn	Oats	Barley
Wheat	49	22	9	36	62	98
Grain Sorghum		99	55	105	22	51
Alfalfa			51	105	16	21
Soybeans				56	3	5
Corn					13	25
Oats						97

Correlating grain sorghum to other crops showed significant coefficients for corn and alfalfa for almost all counties in the state. Also, where soybeans were grown a high degree of correlation to grain sorghum yields was shown. Barley yields were correlated to grain sorghum yields in more counties than were oats yields. Barley and oats yields were correlated with grain sorghum yields in the western one-third and the eastern one-third of the state with the exception of a lack of correlation for those counties in the southeast corner of the state.

Alfalfa yields were correlated with soybean yields in almost every county where soybean data was adequate to establish a relationship between yields.

Neither oats nor barley yields were correlated to alfalfa hay yields in any but a few counties outside northwestern and west central counties. Alfalfa when correlated to oats yields showed negative coefficients for most counties in the eastern third of the state, however, negative correlations were significant in only two counties.

Soybean yields showed a high degree of correlation to corn yields, similar to that shown by grain sorghum yields, for the eastern Kansas counties. Coefficients for soybean and corn yields were as high as .94 with many above .80 in east central and southeastern counties. Soybean yields showed almost no significant correlation to oats or barley yields. Moreover, correlations were about equally divided between negative and positive coefficients.

Yields of corn and oats were correlated in only 13 counties all of which were in the western one-third of the state. East central and southeast counties showed negative coefficients for corn and oats although none were significant at the 5 per cent level. Corn and barley yields showed about the same positive correlation pattern over counties as was shown by corn and oats yields. However, more counties in the southwest showed significant relationships between corn and barley than between corn and oats.

As stated, correlation coefficients for crops grown on farm management association member farms have been computed by two different methods. In general coefficients which were significant when calculated by one method were significant when calculated by the second method (Table 28). Interpretation of results when coefficients were different was not readily apparent. One explanation was that the average correlation coefficient was an unweighted average. Further, a farm with a small number of observations which were highly correlated would contribute more to the average coefficient than would a farm with a larger number of observations of yield which were not as highly correlated. The coefficient which was computed by considering observations of yields on all farms in an association as one sample assigned the same weight to every observation. Farms with a greater number of observations would contribute more weight to determination of the coefficient.

Correlation of yields from farm management data showed some of the same crop relationships as was shown by statistics computed from county data. Both sources of data showed for the same areas of the state similar significant correlations for corn and grain sorghum, corn and soybeans, grain sorghum and soybeans, grain sorghum and alfalfa, and soybeans and alfalfa (Table 28).

The two sources of data showed different relationships between crops for some areas of the state. The greatest difference shown by the two sources of data was for the central third of the state. Where county data showed a lack of correlation of some crop yields in the central third of Kansas, data from farm management records showed significant correlations between crop yields for that area of the state.

A possible explanation for the differences in coefficients was that the basic county data covered the period 1937-1959 and the basic farm management record data was for the period 1948-1959. A greater proportion of the 23 years had above normal rainfall than did the 12 year period.

As would be expected, yields of silage were correlated to yields of grain sorghum and yields of corn inasmuch as silage is typically made from corn or sorghum type crops. Alfalfa hay yields were also correlated to silage yields except for the western third of the state.

In conclusion, yields of most crops tended to be highly correlated over the state. Crops with similar moisture requirements and growing habits were the likely crops to have high correlation coefficients. Oats showed less of a tendency to be correlated with other crops. Barley yields also tended to be not correlated with crops other than wheat and oats.

SUMMARY

Income from farming in Kansas is subject to wide variation from year to year. It was assumed that part of the fluctuation of income could be attributed to changing prices and to crop yields which vary from year to year. It was further assumed that additional information about variation of crop values and crop yields over a long period of time would aid farmers in making production plans.

This analysis substantiated the assumption that changing crop prices and variable crop yields did explain part of the fluctuation of farm income.

Over the 50 year period 1910-1959, the value of all crops harvested varied more than the aggregate quantity of crops harvested. Variation of the annual value of crops harvested was greater for western Kansas counties than for eastern counties.

The value of crops harvested per farm was four to five times higher for western counties than for eastern counties. The much higher value of crops harvested by farms in the western third of the state was attributable to the size of the farm rather than to a higher value of crops harvested per acre. Further, the value of all crops harvested per acre was higher in eastern and central counties than in western counties.

Only a limited amount of data was utilized for an analysis of crop production costs. Farm records for 1956-1959 showed crop production costs higher per acre for the central and eastern two-thirds of the state than for the western third. However, with higher crop production costs farm management associations two and four showed higher net values of crop production than did other associations.

Variation from year to year of the gross value per acre of crops produced on irrigated land was not appreciably different from the variation of crop production on non-irrigated farms. Crop costs were higher on irrigated farms than on farms with no land irrigated. The net value of crops produced did show less variability for irrigated farms than for non-irrigated farms. However, data on irrigated farms was so limited that only tendencies could be observed.

Crop yields varied considerably from year to year within a county. Also, the level of yields varied over the state. Crop yields were highest in eastern counties. Yields tended to decrease from eastern to central to western counties with lowest yields in western counties. Yearly variation of yields was in the reverse direction to changes in the level of yields. Yields were more variable in western counties than other counties.

Yields of wheat, oats, and barley when determined per acre seeded were less than yields per acre harvested. Abandonment of wheat was highest for the western third of the state with few seeded acres of wheat not harvested in eastern counties. For oats and barley some abandonment of seeded acres occurred in central and eastern counties as well as western counties.

Growing wheat on fallowed land did increase average yields but to less than double yields of wheat grown continuously. For the western two-thirds of the state where wheat was grown on fallow, variation of wheat yields was reduced compared to variation of wheat grown continuously. However, some counties showed less variation for wheat grown continuously than for wheat grown on fallow.

Frequency distributions of crop yields illustrated the kind of difficulty which confronts producers when making production plans. Most crops showed the tendency for annual yields to vary over a fairly wide range with a disproportionate number of years with low yields.

Yields of crops grown on farm management association member farms were higher than county yields. Even though farm records covered the years 1948-1959 and county data covered the years 1937-1959, both sources of data showed similar differences between level of yields and variation of yields among areas of the state.

Crop yields were fairly closely related to each other. Closest relationships were shown by corn and grain sorghum. Small grain crop yields also tend to be closely correlated. Where soybeans were grown changes in soybean yields were closely associated with changes in grain sorghum and corn yields.

Oats yields showed less tendency to be correlated to other crops than was shown by any other crop. Except for the correlation of oats with wheat and barley, oats yields tended to be negatively correlated with other crops.

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APPENDIX

TABLE 1. VALUE PER COUNTY IN CURRENT DOLLARS OF ALL CROPS HARVESTED WITH STANDARD DEVIATION AND AVERAGE YEAR-TO-YEAR CHANGE, 1910-1959.

COUNTY	AVERAGE VALUE	STANDARD DEVIATION	AVERAGE YEAR-TO-YEAR CHANGE
NORTHWEST			
CHEYENNE	3,967,170	2,773,183	1,507,551
DECATUR	3,860,620	2,775,095	1,420,553
GRAHAM	3,004,638	2,108,162	1,411,796
NORTON	3,520,936	2,296,891	1,204,486
RAWLINS	4,311,838	3,098,906	1,832,073
SHERIDAN	3,298,352	2,635,361	1,675,553
SHERMAN	3,633,034	3,543,035	1,656,690
THOMAS	4,709,676	4,175,425	2,548,090
WEST CENTRAL			
GOVE	3,032,554	2,583,595	1,549,416
GREELEY	1,766,500	2,672,772	1,118,306
LANE	2,542,994	2,396,789	1,382,059
LOGAN	2,035,252	2,010,054	937,116
NESS	3,835,890	3,176,926	2,072,831
SCOTT	2,661,284	2,913,169	1,193,147
TREGO	2,990,110	2,147,332	1,631,586
WALLACE	1,363,610	1,648,117	704,541
WICHITA	2,139,744	2,745,071	1,018,165
SOUTHWEST			
CLARK	2,437,244	1,733,162	1,253,567
FINNEY	4,903,062	4,357,493	1,663,359
FORD	5,451,432	4,307,785	3,252,108
GRANT	2,187,824	2,423,335	947,016
GRAY	3,640,076	3,371,063	1,899,027
HAMILTON	2,069,334	2,678,901	1,080,549
HASKELL	2,249,126	2,572,595	1,275,518
HODGEMAN	2,667,260	2,285,318	1,506,841
KEARNEY	2,170,084	2,344,979	895,724
MEADE	3,260,512	2,563,833	1,804,278
MORTON	1,811,570	1,915,274	629,278
SEWARD	2,318,206	1,737,202	1,025,427
STANTON	2,417,786	3,079,024	1,220,896
STEVENS	2,947,914	2,385,242	1,027,080

TABLE 1. CONT.

COUNTY	AVERAGE VALUE	STANDARD DEVIATION	AVERAGE YEAR-TO-YEAR CHANGE
NORTH CENTRAL			
CLAY	4,391,336	2,249,494	1,037,190
CLOUD	4,573,626	2,492,890	1,398,484
JEWELL	5,101,920	2,802,632	1,704,671
MITCHELL	4,472,878	2,678,669	1,776,251
OSBORNE	3,857,050	2,219,991	1,625,820
OTTAWA	3,987,466	2,271,166	1,074,614
PHILLIPS	3,637,678	2,042,743	1,363,261
REPUBLIC	4,885,908	2,715,545	1,389,386
ROOKS	3,555,988	2,338,173	1,710,657
SMITH	4,445,798	2,577,072	1,762,627
WASHINGTON	5,478,930	2,905,954	1,408,486
CENTRAL			
BARTON	6,297,486	3,685,018	2,776,833
DICKINSON	6,244,956	2,975,989	1,326,278
ELLIS	3,553,470	2,304,298	1,995,639
ELLSWORTH	3,428,770	1,932,085	1,350,055
LINCOLN	3,539,840	2,205,491	1,452,598
MCPHERSON	6,992,780	3,792,036	2,121,118
MARION	5,888,712	3,004,301	1,200,584
RICE	5,226,404	2,825,362	1,764,733
RUSH	3,967,474	2,832,704	2,341,508
RUSSELL	3,590,582	2,267,267	1,770,986
SALINE	4,546,772	2,301,539	1,022,929
SOUTH CENTRAL			
BARBER	3,631,484	2,063,760	1,060,304
COMANCHE	2,487,110	1,533,710	1,045,863
EDWARDS	3,381,262	2,133,907	1,570,645
HARPER	5,250,604	3,107,654	1,667,910
HARVEY	4,429,816	2,380,825	1,167,741
KINGMAN	4,779,460	2,556,611	1,514,110
KIOWA	3,051,790	1,863,432	1,404,284
PAWNEE	5,130,570	3,208,501	2,558,761
PRATT	4,949,080	2,617,115	1,913,276
RENO	9,386,902	5,081,410	2,863,267
SEDGWICK	7,793,052	4,012,021	2,212,090
STAFFORD	5,053,868	2,464,553	1,771,782
SUMNER	9,016,032	5,717,878	2,804,669

TABLE 1. CONCL.

COUNTY	AVERAGE VALUE	STANDARD DEVIATION	AVERAGE YEAR-TO-YEAR CHANGE
NORTHEAST			
ATCHISON	3,152,898	1,516,977	654,104
BROWN	5,555,086	2,775,745	1,246,041
DONIPHAN	3,756,762	1,826,637	707,216
JACKSON	3,797,562	1,862,625	879,071
JEFFERSON	3,793,068	1,847,985	876,973
LEAVENWORTH	2,978,092	1,479,300	690,463
MARSHALL	6,307,930	3,348,882	1,779,231
NEMAHA	5,143,238	2,729,185	1,414,647
POTTAWATOMIE	3,831,756	1,900,512	914,594
RILEY	3,073,368	1,419,969	651,910
WYANDOTTE	776,654	302,730	179,920
EAST CENTRAL			
ANDERSON	2,968,762	1,726,560	612,280
CHASE	1,684,404	735,119	393,871
COFFEY	3,335,168	1,753,471	828,667
DOUGLAS	3,398,676	1,730,725	705,394
FRANKLIN	3,267,766	1,860,210	764,155
GEARY	1,796,218	900,778	348,431
JOHNSON	3,112,838	1,428,995	730,647
LINN	2,864,352	1,601,019	734,220
LYON	3,965,382	1,850,240	952,486
MIAMI	3,322,552	1,863,767	968,998
MORRIS	3,038,652	1,519,336	685,865
OSAGE	3,722,100	1,954,031	830,282
SHAWNEE	3,755,822	1,822,199	667,078
WABAUNSEE	2,899,222	1,341,298	528,794
SOUTHEAST			
ALLEN	2,780,092	1,576,907	747,573
BOURBON	2,693,934	1,434,779	678,994
BUTLER	4,975,792	2,435,737	1,259,955
CHAUTAUQUA	1,295,142	556,402	320,400
CHEROKEE	3,046,774	1,849,521	820,137
COWLEY	4,652,706	2,566,124	1,155,200
CRAWFORD	2,898,262	1,682,827	751,678
ELK	1,570,304	737,644	319,988
GREENWOOD	2,765,288	1,206,951	623,433
LABETTE	3,267,006	1,887,850	928,159
MONTGOMERY	2,791,770	1,628,868	730,341
NEOSHO	2,887,794	1,692,270	740,547
WILSON	2,658,044	1,572,308	584,469
WOODSON	1,798,560	933,899	459,449

TABLE 2. INDEXED VALUE OF ALL CROPS HARVESTED IN DOLLARS PER COUNTY WITH STANDARD DEVIATION AND AVERAGE YEAR-TO-YEAR CHANGE, 1910-1959.

COUNTY	AVERAGE VALUE	STANDARD DEVIATION	AVERAGE YEAR-TO-YEAR CHANGE
NORTHWEST			
CHEYENNE	4,999,877	2,410,497	1,723,644
DECATUR	4,744,744	2,228,387	1,631,078
GRAHAM	3,832,148	1,966,687	1,765,316
NORTON	4,442,846	1,896,265	1,520,482
RAWLINS	5,382,895	2,517,192	2,025,227
SHERIDAN	4,088,229	2,263,156	1,944,943
SHERMAN	4,409,725	3,148,792	1,716,845
THOMAS	5,658,538	3,523,537	2,780,890
WEST CENTRAL			
GOVE	3,710,363	2,230,158	1,846,354
GREELEY	1,889,876	2,318,007	1,114,248
LANE	3,075,591	2,102,053	1,661,668
LOGAN	2,405,632	1,698,840	1,056,945
NESS	4,777,139	2,802,404	2,508,996
SCOTT	3,059,436	2,443,510	1,232,118
TREGO	3,826,771	1,929,218	1,947,505
WALLACE	1,538,039	1,367,304	678,884
WICHITA	2,334,621	2,359,017	1,019,740
SOUTHWEST			
CLARK	3,173,032	1,560,592	1,597,207
FINNEY	5,886,307	3,521,496	1,839,876
FORD	6,954,686	4,095,808	4,071,430
GRANT	2,523,376	2,180,976	1,070,289
GRAY	4,473,087	3,098,065	2,194,074
HAMILTON	2,299,454	2,383,721	1,077,318
HASKELL	2,628,167	2,325,013	1,433,927
HODGEMAN	3,335,860	2,080,840	1,882,288
KEARNEY	2,537,578	2,036,988	983,196
MEADE	4,184,847	2,398,496	2,292,995
MORTON	2,088,366	1,666,445	705,117
SEWARD	2,906,089	1,559,365	1,241,992
STANTON	2,701,542	2,780,151	1,295,410
STEVENS	3,543,916	2,062,289	1,177,597

TABLE 2. CONT.

COUNTY	AVERAGE VALUE	STANDARD DEVIATION	AVERAGE YEAR-TO-YEAR CHANGE
NORTH CENTRAL			
CLAY	5,763,628	1,368,700	1,105,680
CLOUD	6,030,099	1,707,123	1,367,363
JEWELL	6,707,905	2,201,423	1,958,201
MITCHELL	5,836,246	2,173,349	2,040,857
OSBORNE	5,088,379	1,902,089	1,857,920
OTTAWA	5,167,404	1,462,143	1,162,416
PHILLIPS	4,845,175	1,929,974	1,649,097
REPUBLIC	6,373,564	1,808,439	1,534,017
ROOKS	4,609,239	2,104,059	2,063,879
SMITH	5,828,963	2,259,852	2,070,345
WASHINGTON	7,152,682	1,729,761	1,480,284
CENTRAL			
BARTON	8,163,239	2,892,787	3,369,553
DICKINSON	8,213,561	1,541,514	1,357,459
ELLIS	4,652,390	2,187,308	2,495,109
ELLSWORTH	4,435,987	1,364,943	1,528,038
LINCOLN	4,596,168	1,758,366	1,619,335
MCPHERSON	9,066,432	2,167,862	2,233,472
MARION	7,618,047	1,402,277	1,197,585
RICE	6,774,717	1,801,333	1,989,105
RUSH	5,089,209	2,585,705	3,030,103
RUSSELL	4,665,199	1,985,235	2,083,110
SALINE	5,907,798	1,283,516	1,249,918
SOUTH CENTRAL			
BARBER	4,710,875	1,302,975	1,212,797
COMANCHE	3,261,114	1,247,730	1,266,917
EDWARDS	4,372,447	1,819,505	1,895,325
HARPER	6,719,547	2,015,723	2,041,225
HARVEY	5,758,040	1,447,665	1,375,131
KINGMAN	6,230,461	1,638,011	1,927,236
KIOWA	4,008,287	1,614,970	1,725,994
PAWNEE	6,679,596	2,695,253	3,187,254
PRATT	6,531,054	1,899,179	2,166,001
RENO	12,235,289	3,121,534	3,367,741
SEDGWICK	10,241,626	2,473,026	2,716,954
STAFFORD	6,694,399	1,728,744	2,103,009
SUMNER	11,269,962	3,584,839	3,289,395

TABLE 2. CONCL.

COUNTY	AVERAGE VALUE	STANDARD DEVIATION	AVERAGE YEAR-TO-YEAR CHANGE
NORTHEAST			
ATCHISON	4,131,443	830,768	841,009
BROWN	7,269,160	1,503,357	1,315,295
DONIPHAN	4,937,732	1,105,353	790,907
JACKSON	4,966,249	1,112,020	1,075,924
JEFFERSON	4,970,609	990,917	968,323
LEAVENWORTH	3,908,309	778,501	767,721
MARSHALL	8,205,380	2,001,743	1,853,791
NEMAHA	6,656,811	1,699,845	1,520,921
POTTAWATOMIE	4,993,937	1,081,793	955,927
RILEY	4,059,571	809,730	669,147
WYANDOTTE	1,096,462	328,077	194,608
EAST CENTRAL			
ANDERSON	3,738,854	973,641	673,993
CHASE	2,251,760	484,950	433,665
COFFEY	4,312,125	1,000,963	853,687
DOUGLAS	4,420,454	869,907	769,997
FRANKLIN	4,142,726	1,050,527	823,157
GEARY	2,338,762	480,266	375,114
JOHNSON	4,159,866	906,875	917,571
LINN	3,665,746	939,983	771,138
LYON	5,247,408	1,061,862	1,011,688
MIAMI	4,262,178	1,097,934	1,027,895
MORRIS	3,947,405	834,494	747,522
OSAGE	4,795,133	1,174,427	1,005,575
SHAWNEE	4,903,218	942,111	722,834
WABAUNSEE	3,815,453	687,371	611,785
SOUTHEAST			
ALLEN	3,535,412	872,151	806,910
BOURBON	3,466,622	763,872	709,881
BUTLER	6,573,184	1,410,528	1,463,397
CHAUTAUQUA	1,742,415	347,009	352,231
CHEROKEE	3,859,700	1,101,169	937,787
COWLEY	5,912,668	1,268,982	1,197,381
CRAWFORD	3,709,634	960,265	826,655
ELK	2,073,177	360,603	311,272
GREENWOOD	3,717,282	772,493	722,466
LABETTE	4,184,578	968,099	988,470
MONTGOMERY	3,548,037	863,994	764,560
NEOSHO	3,655,522	914,687	811,200
WILSON	3,354,915	817,065	564,542
WOODSON	2,328,346	488,138	501,389

TABLE 3. FREQUENCY DISTRIBUTION OF VALUE IN CURRENT DOLLARS OF ALL CROPS HARVESTED BY COUNTY, 1910-1959. INTERVALS ARE IN MILLIONS OF DOLLARS.

DOLLARS PER COUNTY	0 TO $.49	.50 TO 1.99	2.00 TO 3.49	3.50 TO 4.99	5.00 TO 6.49	6.50 TO 7.99	8.00 TO 9.49	9.50 TO 10.99	11.00 TO 12.49	12.50 TO 13.99	14.00 TO 15.49	15.50 OR OVER
NORTHWEST												
CHEYENNE	1	16	8	12	3	3	6	1				
DECATUR	2	15	11	6	5	7	2	2				
GRAHAM	5	14	12	11	5	2	1					
NORTON	2	14	13	9	6	4	2					
RAWLINS	1	14	10	7	5	6	3	2	2			
SHERIDAN	4	15	11	8	7	2	1	1	1			
SHERMAN	2	21	8	5	4	3	3	3				1
THOMAS	1	16	8	8	3	4	3	4			2	1
WEST CENTRAL												
GOVE	5	18	11	6	6	1	2		1			
GREELEY	26	8	9	2	1	1	1	2				
LANE	5	23	9	8	1	2		1	1			
LOGAN	11	22	8	5	1	1	2					
NESS	2	13	12	8	7	5		1		1	1	
SCOTT	8	23	3	9	3		1	1	2			
TREGO	2	18	12	10	4	2	2					
WALLACE	19	21	4	4	1	1						
WICHITA	17	16	4	7	2		2	2				
SOUTHWEST												
CLARK	1	23	13	9	2	1	1					
FINNEY		17	11	4	3	2	7	2	1		1	2
FORD		12	7	8	6	6	5	2		1	1	2
GRANT	15	16	7	6	2	1	3					
GRAY	4	19	6	9	6	1	1	2		1	1	
HAMILTON	21	12	8	3	1	2	2	1				
HASKELL	16	13	11	3	3	3				1		
HODGEMAN	5	20	12	8	1	2	1	1				
KEARNEY	10	22	7	5	2		3	1				
MEADE		19	14	8	3	2	3		1			
MORTON	15	19	8	4	2	2						
SEWARD	5	20	15	7	2	1						
STANTON	16	16	4	5	2	2	3	1		1		
STEVENS	5	18	10	6	6	3	2					

TABLE 3. CONT.

DOLLARS PER COUNTY	0 TO $.49	.50 TO 1.99	2.00 TO 3.49	3.50 TO 4.99	5.00 TO 6.49	6.50 TO 7.99	8.00 TO 9.49	9.50 TO 10.99	11.00 TO 12.49	12.50 TO 13.99	14.00 TO 15.49	15.50 OR OVER
NORTH CENTRAL												
CLAY		6	17	6	11	6	4					
CLOUD		7	14	11	6	6	4	2				
JEWELL		8	8	13	4	7	6	3	1			
MITCHELL		10	12	10	6	6	3	3				
OSBORNE		12	11	14	5	7	1					
OTTAWA		9	19	7	6	5	4					
PHILLIPS	1	13	10	13	7	5	1					
REPUBLIC		6	14	10	7	4	4	4	1			
ROOKS	2	13	11	14	4	4	1		1			
SMITH		10	10	11	8	4	6	1				
WASHINGTON		2	15	9	7	7	4	4	2			
CENTRAL												
BARTON		6	6	10	8	5	6	3	2	2	1	1
DICKINSON		1	11	9	6	9	5	4	5			
ELLIS	3	12	12	11	6	3	2	1				
ELLSWORTH		12	17	11	7	1	2					
LINCOLN		13	15	9	8	3	2					
MCPHERSON		1	8	12	6	5	6	3	3	3	2	1
MARION		2	11	11	8	3	5	8	2			
RICE		5	12	9	9	8	3	3			1	
RUSH	1	11	14	9	6	3	3	2	1			
RUSSELL		12	17	9	7	3		2				
SALINE		8	14	7	10	5	5	1				
SOUTH CENTRAL												
BARBER		12	15	12	6	3	1	1				
COMANCHE		22	16	10		2						
EDWARDS		15	14	13	2	4	1	1				
HARPER		5	15	10	4	7	4	2	2		1	
HARVEY		6	16	10	7	6	4	1				
KINGMAN		6	14	10	7	4	8			1		
KIOWA		15	19	9	5		2					
PAWNEE		6	11	11	10	4	3	2	1	1		1
PRATT		5	10	13	10	6	4	1			1	
RENO			3	7	9	7	3	5	3	3	3	7
SEDGWICK			5	11	8	5	5	4	3	4	3	2
STAFFORD		3	12	11	11	7	4	1	1			
SUMNER		1	6	8	9	3	3	2	5	1	5	7

TABLE 3. CONCL.

DOLLARS PER COUNTY	0 TO $.49	.50 TO 1.99	2.00 TO 3.49	3.50 TO 4.99	5.00 TO 6.49	6.50 TO 7.99	8.00 TO 9.49	9.50 TO 10.99	11.00 TO 12.49	12.50 TO 13.99	14.00 TO 15.49	15.50 OR OVER
NORTHEAST												
ATCHISON		16	14	13	7							
BROWN		2	13	12	3	8	7	4	1			
DONIPHAN		9	18	7	12	4						
JACKSON		10	15	7	13	5						
JEFFERSON		9	17	8	12	4						
LEAVENWORTH		19	13	11	7							
MARSHALL		2	12	8	6	6	7	4	2	3		
NEMAHA		4	16	6	8	7	6	2	1			
POTTAWATOMIE		10	15	8	12	5						
RILEY		16	12	18	4							
WYANDOTTE	6	44										
EAST CENTRAL												
ANDERSON		21	9	10	10							
CHASE	1	31	18									
COFFEY		16	12	10	10	2						
DOUGLAS		13	17	6	13	1						
FRANKLIN		17	13	8	10	2						
GEARY		29	21									
JOHNSON		16	14	13	7							
LINN		20	13	10	7							
LYON		8	17	10	9	6						
MIAMI		15	15	10	8	1	1					
MORRIS		17	11	14	8							
OSAGE		15	12	5	14	4						
SHAWNEE		9	19	4	16	2						
WABAUNSEE		13	18	18	1							
SOUTHEAST												
ALLEN		21	12	8	9							
BOURBON		23	10	14	3							
BUTLER		4	12	12	9	5	5	3				
CHAUTAUQUA	3	40	7									
CHEROKEE		22	12	5	10	1						
COWLEY		4	21	5	6	6	7	1				
CRAWFORD		22	12	6	9	1						
ELK	1	35	14									
GREENWOOD		16	16	15	3							
LABETTE		18	14	5	10	3						
MONTGOMERY		24	9	8	9							
NEOSHO		21	13	6	10							
WILSON		26	8	8	8							
WOODSON	1	28	19	2								

TABLE 4. FREQUENCY DISTRIBUTION OF INDEXED VALUE OF ALL CROPS HARVESTED BY COUNTY, 1910-1959. INTERVALS ARE IN MILLIONS OF DOLLARS.

DOLLARS PER COUNTY	0 TO $.49	.50 TO 1.99	2.00 TO 3.49	3.50 TO 4.99	5.00 TO 6.49	6.50 TO 7.99	8.00 TO 9.49	9.50 TO 10.99	11.00 TO 12.49	12.50 TO 13.99	14.00 TO 15.49	15.50 OR OVER
NORTHWEST												
CHEYENNE	1	2	14	11	9	5	6	2				
DECATUR		10	5	8	14	10	3					
GRAHAM	2	10	6	16	13	3						
NORTON		8	8	10	18	6						
RAWLINS		4	12	5	14	7	4	4				
SHERIDAN		12	8	10	14	2	4					
SHERMAN	1	14	9	9	5	2	6	2	2			
THOMAS	1	7	8	9	8	6	3	3	3	1		1
WEST CENTRAL												
GOVE	1	11	14	10	8	3	3					
GREELEY	17	16	9	3	1	2	1	1				
LANE	2	17	14	10	2	3	2					
LOGAN	1	25	14	6	3		1					
NESS	1	8	10	10	7	7	4	2	1			
SCOTT	2	22	7	12	2	1	3	1				
TREGO		9	15	12	8	6						
WALLACE	10	29	4	5	2							
WICHITA	9	19	10	6	2	1	3					
SOUTHWEST												
CLARK		16	14	11	9							
FINNEY		4	13	9	3	7	7	1	2	2	2	
FORD		6	6	5	10	7	2	3	5	3	2	1
GRANT	9	15	14	5	4	1	2					
GRAY		13	12	7	4	6	2	5	1			
HAMILTON	8	24	7	5	1	2	2	1				
HASKELL	6	22	6	7	6	2		1				
HODGEMAN	1	13	17	8	6	4	1					
KEARNEY		28	9	8	1	2	2					
MEADE		10	15	10	3	8	3	1				
MORTON	8	21	11	6	3	1						
SEWARD		15	21	7	6	1						
STANTON	13	16	7	5	4	1	1	3				
STEVENS		13	15	8	9	3	2					

TABLE 4. CONT.

DOLLARS PER COUNTY	0 TO $.49	.50 TO 1.99	2.00 TO 3.49	3.50 TO 4.99	5.00 TO 6.49	6.50 TO 7.99	8.00 TO 9.49	9.50 TO 10.99	11.00 TO 12.49	12.50 TO 13.99	14.00 TO 15.49	15.50 OR OVER
NORTH CENTRAL												
CLAY			3	9	25	10	3					
CLOUD		1	4	8	12	21	4					
JEWELL			4	9	7	16	9	5				
MITCHELL		3	4	9	14	11	8	1				
OSBORNE		6	5	8	19	11	1					
OTTAWA		1	5	19	13	11	1					
PHILLIPS		6	8	10	13	12	1					
REPUBLIC			5	5	16	16	6	2				
ROOKS		7	8	13	14	6	1	1				
SMITH		2	9	7	10	12	10					
WASHINGTON			1	5	11	16	12	5				
CENTRAL												
BARTON			2	4	9	12	6	8	3	6		
DICKINSON					7	16	19	5	3			
ELLIS		7	9	15	6	10	3					
ELLSWORTH		2	10	21	13	4						
LINCOLN		6	7	15	15	7						
MCPHERSON				1	4	14	9	13	5	4		
MARION					12	15	20	1	2			
RICE				7	20	6	14	2	1			
RUSH		7	8	12	8	6	7	2				
RUSSELL		8	10	9	13	7	3					
SALINE			3	6	25	14	2					
SOUTH CENTRAL												
BARBER			10	19	17	4						
COMANCHE		9	24	10	7							
EDWARDS		5	13	15	7	9	1					
HARPER			2	9	12	16	7	2	2			
HARVEY			3	15	18	11	2	1				
KINGMAN			2	10	17	14	6	1				
KIOWA		7	13	15	11	4						
PAWNEE		1	3	13	9	9	6	5	3	1		
PRATT			3	6	15	15	9	1	1			
RENO					1	3	7	7	9	8	8	7
SEDGWICK					2	8	9	9	14	6	1	1
STAFFORD			1	9	13	15	10	2				
SUMNER					2	9	6	10	8	6	5	4

TABLE 4. CONCL.

DOLLARS PER COUNTY	0 TO $.49	.50 TO 1.99	2.00 TO 3.49	3.50 TO 4.99	5.00 TO 6.49	6.50 TO 7.99	8.00 TO 9.49	9.50 TO 10.99	11.00 TO 12.49	12.50 TO 13.99	14.00 TO 15.49	15.50 OR OVER
NORTHEAST												
ATCHISON		1	10	32	7							
BROWN			1	2	12	20	12	3				
DONIPHAN			6	20	19	5						
JACKSON		1	3	21	21	4						
JEFFERSON			4	22	20	4						
LEAVENWORTH			13	34	3							
MARSHALL				3	7	16	9	8	7			
NEMAHA			1	7	18	11	12	1				
POTTAWATOMIE		1	3	21	24	1						
RILEY		1	6	36	7							
WYANDOTTE		50										
EAST CENTRAL												
ANDERSON		1	21	24	4							
CHASE		12	38									
COFFEY		1	7	31	10	1						
DOUGLAS			8	28	14							
FRANKLIN		1	13	25	9	2						
GEARY		11	37	2								
JOHNSON			14	27	9							
LINN		1	20	25	4							
LYON			3	19	24	3	1					
MIAMI			13	24	12	1						
MORRIS		1	12	31	6							
OSAGE		1	5	20	21	3						
SHAWNEE			4	22	22	2						
WABAUNSEE		1	13	35	1							
SOUTHEAST												
ALLEN		1	25	22	2							
BOURBON		1	26	22	1							
BUTLER			1	5	19	17	8					
CHAUTAUQUA		43	7									
CHEROKEE			23	19	7	1						
COWLEY				16	18	13	3					
CRAWFORD			22	24	3	1						
ELK		25	25									
GREENWOOD		1	19	28	2							
LABETTE		1	13	25	11							
MONTGOMERY			30	17	3							
NEOSHO		1	22	24	3							
WILSON		1	31	16	2							
WOODSON		9	41									

TABLE 5. FREQUENCY DISTRIBUTION OF VALUE PER FARM IN CURRENT DOLLARS OF ALL CROPS HARVESTED BY COUNTY, 1910–1959.

DOLLARS PER FARM	0 TO $999	1000 TO 2499	2500 TO 3999	4000 TO 5499	5500 TO 6999	7000 TO 8499	8500 TO 9999	10000 TO 11499	11500 TO 12999	13000 TO 14499	14500 TO 15999	16000 OR OVER
NORTHWEST												
CHEYENNE	4	14	11	6	3	3	2	2	4	1		
DECATUR	13	12	5	5	5	5	2	3				
GRAHAM	12	13	7	7	7	2	2					
NORTON	14	17	4	7	4	3	1					
RAWLINS	7	13	11	2	4	3	5	2		2	1	
SHERIDAN	14	7	9	5	5	6	1	1		1	1	
SHERMAN	6	15	6	5	3	2	3	1	1	1	2	5
THOMAS	6	11	8	6	3	3	2	2	1	5		3
WEST CENTRAL												
GOVE	11	13	6	5	2	5	2	2	1		2	1
GREELEY	14	14	4	1		1	3		2		1	10
LANE	6	12	10	2	5	2	2	5	1		2	3
LOGAN	14	12	6		7		3	3	1			4
NESS	10	13	7	7	4	6			1		1	1
SCOTT	7	18	6	2	1	1	1	5	5			4
TREGO	8	15	8	9	4	3	1	2				
WALLACE	17	17		3	4	1	2	1		2	1	2
WICHITA	13	15	3	2		4		5		2		6
SOUTHWEST												
CLARK	3	12	13	6	6	1	5	2				2
FINNEY		18	9	4	3	1	3	3	2	2	1	4
FORD	9	7	12	7	6	3	2	1	1		1	1
GRANT	10	10	4	6	2		3	1		4		10
GRAY	8	12	7	5	5	4	1	3	1			4
HAMILTON	16	15		2	2	3	3	1	2			6
HASKELL	11	9	3	6	3	5	1	1	2		4	5
HODGEMAN	10	11	8	9	3	4		2		1	1	1
KEARNEY	10	16	6		1	5	1	1	3	1		6
MEADE	7	14	8	8	4	1	1	2	2	2		1
MORTON	12	10	8	2	3	2	3		3	1	2	4
SEWARD	7	11	6	6	7	2	2	1	3	2		3
STANTON	9	11	10		2	1			3	1	1	12
STEVENS	6	15	6	4	3	1	2	2	3	2	2	4

TABLE 5. CONT.

DOLLARS PER FARM	0 TO $999	1000 TO 2499	2500 TO 3999	4000 TO 5499	5500 TO 6999	7000 TO 8499	8500 TO 9999	10000 TO 11499	11500 TO 12999	13000 TO 14499	14500 TO 15999	16000 OR OVER
NORTH CENTRAL												
CLAY	6	23	9	6	6							
CLOUD	8	22	10	5	2	3						
JEWELL	12	19	11	3	4	1						
MITCHELL	7	19	7	8	4	2	1	2				
OSBORNE	11	17	10	3	6	2	1					
OTTAWA	7	22	7	5	3	6						
PHILLIPS	13	18	10	5	4							
REPUBLIC	11	20	10	7	2							
ROOKS	11	15	7	9	3	5						
SMITH	13	18	9	5	4	1						
WASHINGTON	9	23	9	7	2							
CENTRAL												
BARTON	5	15	10	10	4	3	2	1				
DICKINSON	4	23	11	6	6							
ELLIS	10	12	15	5	5	2	1					
ELLSWORTH	6	18	10	7	5	3	1					
LINCOLN	12	16	8	7	4	3						
MCPHERSON	2	23	14	4	6	1						
MARION	5	23	11	7	4							
RICE	3	17	12	7	5	1	4		1			
RUSH	9	13	9	8	3	5		1	2			
RUSSELL	9	14	11	8	5		3					
SALINE	6	21	9	5	6	3						
SOUTH CENTRAL												
BARBER	1	20	11	4	7	4	1	1	1			
COMANCHE		12	10	11	5	4	3	2	1			2
EDWARDS	5	11	10	10	5	3	2	1	1	1	1	
HARPER	4	16	14	3	6	3	2	2				
HARVEY	5	23	10	5	6	1						
KINGMAN	3	22	9	7	7	1	1					
KIOWA	5	8	17	4	5	4	3	1	1	1		1
PAWNEE	3	9	10	10	6	6	1	1	1	1	1	1
PRATT	1	10	14	10	7	2	3	1	1		1	
RENO	3	23	11	6	5	2						
SEDGWICK	6	23	9	8	1	3						
STAFFORD	2	15	10	10	7	3	2	1				
SUMNER	5	22	7	4	5	4		2	1			

TABLE 5. CONCL.

DOLLARS PER FARM	0 TO $999	1000 TO 2499	2500 TO 3999	4000 TO 5499	5500 TO 6999	7000 TO 8499	8500 TO 9999	10000 TO 11499	11500 TO 12999	13000 TO 14499	14500 TO 15999	16000 OR OVER
NORTHEAST												
ATCHISON	12	20	16	2								
BROWN	3	25	10	6	6							
DONIPHAN	9	20	9	11	1							
JACKSON	15	20	14	1								
JEFFERSON	12	20	14	4								
LEAVENWORTH	20	21	9									
MARSHALL	6	23	12	4	5							
NEMAHA	8	20	12	8	2							
POTTAWATOMIE	11	21	9	9								
RILEY	7	23	11	7	2							
WYANDOTTE	45	5										
EAST CENTRAL												
ANDERSON	18	16	11	5								
CHASE	8	21	13	7	1							
COFFEY	18	19	9	4								
DOUGLAS	15	18	14	3								
FRANKLIN	21	18	10	1								
GEARY	6	24	8	7	4	1						
JOHNSON	20	21	8	1								
LINN	23	15	9	3								
LYON	14	22	12	2								
MIAMI	21	18	10	1								
MORRIS	14	15	11	10								
OSAGE	20	16	11	3								
SHAWNEE	15	21	14									
WABAUNSEE	10	21	15	4								
SOUTHEAST												
ALLEN	22	16	10	2								
BOURBON	26	17	7									
BUTLER	10	23	11	6								
CHAUTAUQUA	26	22	2									
CHEROKEE	27	12	9	2								
COWLEY	16	18	13	3								
CRAWFORD	28	14	8									
ELK	22	21	7									
GREENWOOD	17	19	14									
LABETTE	23	16	11									
MONTGOMERY	28	17	5									
NEOSHO	24	15	11									
WILSON	23	15	9	3								
WOODSON	18	17	14	1								

TABLE 6. FREQUENCY DISTRIBUTION OF INDEXED VALUE PER FARM OF ALL CROPS HARVESTED BY COUNTY, 1910-1959.

DOLLARS PER FARM	0 TO $999	1000 TO 2499	2500 TO 3999	4000 TO 5499	5500 TO 6999	7000 TO 8499	8500 TO 9999	10000 TO 11499	11500 TO 12999	13000 TO 14499	14500 TO 15999	16000 OR OVER
NORTHWEST												
CHEYENNE	1	5	12	9	9	4	3	4	2	1		
DECATUR	4	10	8	11	7	8	1	1				
GRAHAM	7	8	8	13	11	2	1					
NORTON	5	13	12	12	7	1						
RAWLINS	1	9	8	9	11	4	2	5		1		
SHERIDAN	7	8	4	15	7	3	2	4				
SHERMAN	1	10	9	5	6	5	1	3	1	4		5
THOMAS	2	9	5	7	4	10	3	1	1	4	2	2
WEST CENTRAL												
GOVE	4	11	9	5	11	2	1	1	4	1		1
GREELEY	7	11	8	3	1	4	1	3		1		11
LANE	3	7	9	6	4	4	7	4		1	1	4
LOGAN	4	15	6	6	4	4	6	1		1	1	2
NESS	4	10	8	9	7	8	1		3			
SCOTT	2	12	9	4	3	3	7	3	2		1	4
TREGO	3	8	12	10	8	7	1	1				
WALLACE	8	15	7	9	1	1	3	1	1	1	3	
WICHITA	5	16	3	5	3	2	7	2		1		6
SOUTHWEST												
CLARK		5	13	7	8	4	5	6	1	1		
FINNEY		2	13	9	4	5	3	7	2	1		4
FORD		11	8	8	8	3	7	3	1	1		
GRANT	1	12	9	2	1	4	2	3	3	2	3	8
GRAY		10	9	8	6	4	2	3	3	1	2	2
HAMILTON	8	15	7	3	1	4	1	1	1	3		6
HASKELL	1	12	7	3	5	4	2	4	2	1	3	6
HODGEMAN	4	8	8	11	7	4	4		3	1		
KEARNEY		13	13	3	2	5	1	4	3	1		5
MEADE		8	11	14	2	2	5	4	1	2	1	
MORTON	4	12	7	5	6	2	4	1		3	1	5
SEWARD		6	11	10	3	8	1	3	2	2	2	2
STANTON	4	12	5	4	3	1	1	4	3		1	12
STEVENS		10	9	7	4	2	6	1	3	2	4	2

TABLE 6. CONT.

DOLLARS PER FARM	0 TO $999	1000 TO 2499	2500 TO 3999	4000 TO 5499	5500 TO 6999	7000 TO 8499	8500 TO 9999	10000 TO 11499	11500 TO 12999	13000 TO 14499	14500 TO 15999	16000 OR OVER
NORTH CENTRAL												
CLAY		11	24	13	2							
CLOUD	1	10	28	8	1	2						
JEWELL	3	13	23	7	4							
MITCHELL	3	6	20	11	6	2	1	1				
OSBORNE	3	7	25	6	8		1					
OTTAWA	1	7	24	10	5	2	1					
PHILLIPS	6	11	23	8	1	1						
REPUBLIC		19	22	6	3							
ROOKS	6	7	14	14	8	1						
SMITH	4	13	23	6	4							
WASHINGTON		25	19	4	2							
CENTRAL												
BARTON		4	11	16	11	6	2					
DICKINSON		5	31	11	3							
ELLIS	4	8	16	12	7	3						
ELLSWORTH		7	19	16	6	2						
LINCOLN	3	7	23	10	6	1						
MCPHERSON		5	24	17	3	1						
MARION		9	32	7	2							
RICE		1	19	15	11	1	3					
RUSH	1	10	11	10	8	7	2		1			
RUSSELL	1	11	17	13	4	3	1					
SALINE		7	20	17	4	2						
SOUTH CENTRAL												
BARBER		2	16	18	8	3	2	1				
COMANCHE			11	8	11	6	6	4	3		1	
EDWARDS		6	7	14	7	9	4	1	1	1		
HARPER		4	18	15	9	1	2	1				
HARVEY		8	26	13	1	2						
KINGMAN		8	17	17	5	3						
KIOWA		4	11	10	7	11	3	2	1	1		
PAWNEE		2	7	14	9	7	6	2	1	1	1	
PRATT		1	7	15	12	13			2			
RENO		4	21	19	5	1						
SEDGWICK		14	25	8	1	1	1					
STAFFORD		1	8	21	12	6	1	1				
SUMNER		8	22	9	8		1	2				

TABLE 6. CONCL.

DOLLARS PER FARM	0 TO $999	1000 TO 2499	2500 TO 3999	4000 TO 5499	5500 TO 6999	7000 TO 8499	8500 TO 9999	10000 TO 11499	11500 TO 12999	13000 TO 14499	14500 TO 15999	16000 OR OVER
NORTHEAST												
ATCHISON		28	21	1								
BROWN		6	29	12	3							
DONIPHAN		10	30	9	1							
JACKSON	1	28	21									
JEFFERSON		25	24	1								
LEAVENWORTH	2	45	3									
MARSHALL		11	30	7	2							
NEMAHA		17	23	10								
POTTAWATOMIE	1	24	21	4								
RILEY		17	29	2	2							
WYANDOTTE	42	8										
EAST CENTRAL												
ANDERSON	1	30	16	2	1							
CHASE		18	27	3	2							
COFFEY	1	36	10	2	1							
DOUGLAS		30	17	3								
FRANKLIN	1	39	8	2								
GEARY		13	25	9	1	2						
JOHNSON	3	39	8									
LINN	3	36	8	3								
LYON	1	38	9	2								
MIAMI	2	37	10	1								
MORRIS		18	26	6								
OSAGE	1	36	11	2								
SHAWNEE		34	16									
WABAUNSEE		23	25	2								
SOUTHEAST												
ALLEN	2	38	8	2								
BOURBON	3	43	4									
BUTLER		21	26	2	1							
CHAUTAUQUA	3	47										
CHEROKEE	3	38	7	1	1							
COWLEY		31	17	2								
CRAWFORD	6	42	2									
ELK	1	46	3									
GREENWOOD	1	36	13									
LABETTE	1	44	5									
MONTGOMERY	2	45	3									
NEOSHO	2	42	6									
WILSON	1	39	8	2								
WOODSON	2	33	14	1								

TABLE 7. AVERAGE YEAR-TO-YEAR CHANGE OF VALUE OF ALL CROPS HARVESTED, 1910-1959.

COUNTY	DOLLARS PER FARM		DOLLARS PER ACRE	
	CURRENT	INDEXED	CURRENT	INDEXED
NORTHWEST				
CHEYENNE	1,749	1,962	5.28	6.11
DECATUR	1,347	1,451	5.50	5.86
GRAHAM	1,361	1,589	5.42	6.24
NORTON	902	1,069	4.60	5.26
RAWLINS	1,967	2,074	6.74	7.13
SHERIDAN	1,988	2,217	6.12	6.67
SHERMAN	2,713	2,692	5.21	5.39
THOMAS	3,290	3,499	6.71	7.28
WEST CENTRAL				
GOVE	2,245	2,550	6.37	7.14
GREELEY	5,903	5,797	5.49	5.81
LANE	3,196	3,687	6.52	7.61
LOGAN	2,231	2,352	5.11	5.58
NESS	2,170	2,524	6.30	7.44
SCOTT	2,694	2,703	6.13	6.57
TREGO	1,925	2,242	6.50	7.33
WALLACE	2,039	1,935	5.32	5.16
WICHITA	3,015	2,964	5.84	6.18
SOUTHWEST				
CLARK	2,427	2,977	6.39	7.93
FINNEY	2,118	2,252	5.56	6.36
FORD	2,585	3,195	7.34	8.95
GRANT	3,771	3,918	6.32	7.17
GRAY	2,768	3,056	6.18	7.36
HAMILTON	3,123	3,003	6.24	6.32
HASKELL	3,964	4,301	6.53	7.97
HODGEMAN	2,406	2,914	5.81	6.93
KEARNEY	2,701	2,770	6.10	6.51
MEADE	2,520	3,013	6.66	8.43
MORTON	2,074	2,212	4.32	4.89
SEWARD	2,470	2,795	5.15	5.96
STANTON	4,975	5,167	6.19	6.53
STEVENS	2,061	2,195	4.48	5.16
CENTRAL				
CLAY	622	638	4.21	4.45
CLOUD	806	771	5.08	5.07
JEWELL	837	904	5.18	6.03
MITCHELL	1,294	1,408	6.09	7.14
OSBORNE	1,231	1,329	5.77	6.33
OTTAWA	805	838	4.86	5.11
PHILLIPS	884	1,010	4.95	5.45
REPUBLIC	683	731	4.80	5.44
ROOKS	1,376	1,574	5.85	6.39
SMITH	968	1,068	5.60	6.41
WASHINGTON	582	605	4.54	4.89
NORTH CENTRAL				
BARTON	1,736	2,049	6.66	7.90
DICKINSON	594	599	4.16	4.07
ELLIS	1,681	2,039	6.73	7.88
ELLSWORTH	1,285	1,396	6.00	6.42
LINCOLN	1,147	1,233	6.18	6.78
MCPHERSON	899	926	5.74	5.88
MARION	529	529	3.73	3.70
RICE	1,301	1,414	5.88	6.41
RUSH	2,204	2,773	7.09	9.07
RUSSELL	1,549	1,729	6.37	6.98
SALINE	681	783	4.31	4.69

TABLE 7. CONCL.

COUNTY	DOLLARS PER FARM		DOLLARS PER ACRE	
	CURRENT	INDEXED	CURRENT	INDEXED
SOUTH CENTRAL				
BARBER	1,180	1,285	4.39	5.18
COMANCHE	2,256	2,610	5.43	6.21
EDWARDS	2,173	2,516	5.85	6.89
HARPER	1,182	1,382	5.13	6.32
HARVEY	761	874	4.61	5.41
KINGMAN	1,024	1,260	4.73	5.82
KIOWA	2,238	2,554	5.90	6.66
PAWNEE	2,597	3,120	6.85	8.26
PRATT	1,892	2,056	5.97	6.57
RENO	948	1,096	5.40	6.13
SEDGWICK	777	898	5.08	6.13
STAFFORD	1,487	1,695	5.27	6.00
SUMNER	1,088	1,228	5.38	6.16
NORTHEAST				
ATCHISON	390	489	4.03	4.97
BROWN	630	657	5.23	5.33
DONIPHAN	475	521	4.90	5.00
JACKSON	407	482	3.96	4.65
JEFFERSON	445	479	4.59	4.60
LEAVENWORTH	347	383	4.65	4.79
MARSHALL	709	738	5.14	5.59
NEMAHA	664	701	5.42	5.87
POTTAWATOMIE	491	512	4.46	4.92
RILEY	482	485	4.28	4.48
WYANDOTTE	137	141	7.09	7.27
EAST CENTRAL				
ANDERSON	385	411	3.45	3.70
CHASE	528	570	4.65	5.26
COFFEY	454	459	3.84	3.94
DOUGLAS	395	427	4.51	4.63
FRANKLIN	377	404	4.22	4.46
GEARY	515	547	4.00	4.20
JOHNSON	364	447	4.78	5.37
LINN	390	407	3.85	4.09
LYON	411	431	4.37	4.53
MIAMI	465	485	4.52	4.61
MORRIS	505	534	4.19	4.27
OSAGE	363	436	4.26	5.06
SHAWNEE	312	338	4.17	4.41
WABAUNSEE	361	401	3.57	4.10
SOUTHEAST				
ALLEN	421	449	4.02	4.12
BOURBON	323	341	3.83	3.97
BUTLER	528	604	4.19	4.95
CHAUTAUQUA	292	305	3.65	3.77
CHEROKEE	406	452	4.02	4.48
COWLEY	470	475	4.58	4.72
CRAWFORD	324	352	3.78	4.09
ELK	269	262	2.90	2.84
GREENWOOD	364	417	3.74	4.24
LABETTE	417	438	3.70	3.75
MONTGOMERY	329	344	3.79	3.79
NEOSHO	376	408	3.63	3.88
WILSON	355	343	3.80	3.90
WOODSON	433	461	3.37	3.52

TABLE 8. FREQUENCY DISTRIBUTION OF VALUE PER ACRE IN CURRENT DOLLARS OF ALL CROPS HARVESTED BY COUNTY, 1910-1959.

DOLLARS PER ACRE	0 TO $3.99	4.00 TO 7.99	8.00 TO 11.99	12.00 TO 15.99	16.00 TO 19.99	20.00 TO 23.99	24.00 TO 27.99	28.00 TO 31.99	32.00 TO 35.99	36.00 TO 39.99	40.00 TO 43.99	44.00 OR OVER
NORTHWEST												
CHEYENNE	3	13	5	8	2	5	3	2	2	4	2	1
DECATUR	11	7	9	3	2	2	3	2	2	5	1	3
GRAHAM	11	9	5	7	3	6	4	2	3			
NORTON	10	8	9	4	1	3	5	4	3	2	1	
RAWLINS	5	11	7	7	1	3	2	2	4	3	2	3
SHERIDAN	12	9	7	2	3	4	3	5	2		1	2
SHERMAN	10	6	11	4	2	6	2	2	3	3		1
THOMAS	10	9	9	2	3	3	3	3	3	2	1	2
WEST CENTRAL												
GOVE	11	9	5	5	4	3	5	4	1		1	2
GREELEY	13	8	8	6	5	4	1		1	2	1	1
LANE	9	12	3	7	4	3	6	2	1	1		2
LOGAN	14	7	5	6	5	7	1	2			2	1
NESS	11	8	5	7	5	7	3	1			2	1
SCOTT	9	12	5	4	2	5	4	2	3		1	3
TREGO	6	13	6	5	5	5	5	2		2	1	
WALLACE	15	7	5	6	5	4	2	1	3		1	1
WICHITA	11	12	2	6	3	7	2	2		1	2	2

TABLE 8. CONT.

DOLLARS PER ACRE	0 TO $3.99	4.00 TO 7.99	8.00 TO 11.99	12.00 TO 15.99	16.00 TO 19.99	20.00 TO 23.99	24.00 TO 27.99	28.00 TO 31.99	32.00 TO 35.99	36.00 TO 39.99	40.00 TO 43.99	44.00 OR OVER
SOUTHWEST												
CLARK	5	13	5	7	6	8	1	2		1	2	
FINNEY	4	9	4	4	8	2	7	4	2	3	1	2
FORD	6	11	6	7	7	6	1	2	2		1	1
GRANT	9	7	6	4	9	5	2	3		2	2	1
GRAY	8	10	7	3	12	3	2	2			3	
HAMILTON	8	8	5	10	6	2	4	2	1	1	1	2
HASKELL	12	6	6	5	10	3	1	3	1	2		1
HODGEMAN	11	9	5	9	7	3	2	1		2	1	
KEARNEY	3	11	5	5	8	4	5	2	2	1	2	2
MEADE	6	13	5	7	6	5	3	1	1	2	1	
MORTON	12	3	8	12	3	6	1	2	2	1		
SEWARD	4	11	7	9	5	9	1	2		2		
STANTON	10	6	4	7	5	6	4	1	1	1	4	1
STEVENS	5	12	4	9	5	5	6	3		1		
NORTH CENTRAL												
CLAY		8	9	10	2	5	6	2	4	4		
CLOUD		8	13	5	5	6	3	3	4	3		
JEWELL	1	13	7	6	6	8	2	3	3	1		
MITCHELL	1	10	11	5	7	5	5	1	2	1	2	
OSBORNE	5	11	5	9	6	4	3	5	1	1		
OTTAWA		11	9	8	2	7	3	2	3	5		
PHILLIPS	8	9	7	7	5	4	6	2	1	1		
REPUBLIC		11	10	6	3	8	3	3	3	2	1	
ROOKS	10	8	7	6	3	8	3	2	1	2		
SMITH	7	7	9	3	9	5	5	1	1	3		
WASHINGTON		11	10	4	5	7	1	4	4	3	1	

TABLE 8. CONT.

DOLLARS PER ACRE	0 TO $3.99	4.00 TO 7.99	8.00 TO 11.99	12.00 TO 15.99	16.00 TO 19.99	20.00 TO 23.99	24.00 TO 27.99	28.00 TO 31.99	32.00 TO 35.99	36.00 TO 39.99	40.00 TO 43.99	44.00 OR OVER
CENTRAL												
BARTON	2	7	12	5	4	6	6	3	3		2	
DICKINSON		7	7	9	4	6	5	3	5	4		
ELLIS	4	10	9	10	7		3	4	1	1	1	
ELLSWORTH	3	8	9	8	4	3	9		2	2	2	
LINCOLN	2	13	7	5	5	3	7	3	2	1	2	
MCPHERSON		8	8	9	5	7	1	3	3	3	3	
MARION		8	10	9	4	4	5	3	7			
RICE	1	7	11	5	7	6	4	2	3	2	1	1
RUSH	5	9	11	4	6	6	3	2	1	2		1
RUSSELL	2	12	7	10	4	7	2	3		3		
SALINE		7	10	7	4	5	3	4	5	3	2	
SOUTH CENTRAL												
BARBER	3	9	8	6	6	10	1	3	1	2		1
COMANCHE	4	10	8	7	9	6	3		1	1	1	
EDWARDS	3	11	8	6	12	2	3	2	1	1	1	
HARPER	1	8	12	6	4	6	4	4	2	1	1	1
HARVEY		6	9	9	7	3	5	1	4	4	2	
KINGMAN	2	7	12	9	3	7	1	7	1		1	
KIOWA	4	11	9	8	6	5	3	1		2	1	
PAWNEE	2	9	9	8	7	6	3	1	2	1	1	1
PRATT	1	7	8	8	10	6	3	4	1	1		1
RENO	1	6	9	9	4	6	4	3	3	4		1
SEDGWICK		7	8	10	5	5	3	4	3	3	2	
STAFFORD	2	5	15	3	8	7	3	4	2		1	
SUMNER	1	8	12	6	4	3	3	7	2	2	1	1

TABLE 8. CONT.

DOLLARS PER ACRE	0 TO $3.99	4.00 TO 7.99	8.00 TO 11.99	12.00 TO 15.99	16.00 TO 19.99	20.00 TO 23.99	24.00 TO 27.99	28.00 TO 31.99	32.00 TO 35.99	36.00 TO 39.99	40.00 TO 43.99	44.00 OR OVER
NORTHEAST												
ATCHISON		3	13	8	1	6	4	2	1	8	3	1
BROWN		3	8	9	5	4	5	4		2	5	5
DONIPHAN		2	6	7	3	9	3	3	1	3	2	11
JACKSON		7	14	3	4	6	2	3	6	4	1	
JEFFERSON		5	10	9	1	5	5	3	3	4	2	3
LEAVENWORTH		3	12	8	2	5	5	2	3	4	3	3
MARSHALL		10	11	4	4	4	3	5	3	2	3	1
NEMAHA		8	10	6	3	5	3	6	2	3	2	2
POTTAWATOMIE	1	8	6	9	3	3	4	5	4	5	2	
RILEY	1	7	6	6	5	4	3	5	5	4	4	
WYANDOTTE				6	4	7	2	2	6	1	6	16
EAST CENTRAL												
ANDERSON		12	8	6	3	7	1	5	5	3		
CHASE	3	5	8	3	5	4	3	7	4	4	4	
COFFEY		12	6	7	4	6	3	8	1	3		
DOUGLAS		2	11	7	4	6		5	4	2	5	4
FRANKLIN	1	8	10	5	5	5	2	4	6	2	1	1
GEARY	1	8	5	7	5	4	6	4	1	7	2	
JOHNSON		3	14	4	5	4	5	2	5	3	3	2
LINN		14	6	7	5	3	2	6	5	2		
LYON		8	8	7	4	4	4	6	6	3		
MIAMI	1	11	8	5	6	3	4	3	5	2	1	1
MORRIS	1	10	7	5	5	5	5	5	5	2		
OSAGE		11	6	7	3	3	5	5	5	5		
SHAWNEE		2	11	5	6	6		3	4	3	9	1
WABAUNSEE	1	9	7	6	4	2	5	5	5	6		

TABLE 8. CONCL.

DOLLARS PER ACRE	0 TO $3.99	4.00 TO 7.99	8.00 TO 11.99	12.00 TO 15.99	16.00 TO 19.99	20.00 TO 23.99	24.00 TO 27.99	28.00 TO 31.99	32.00 TO 35.99	36.00 TO 39.99	40.00 TO 43.99	44.00 OR OVER
SOUTHEAST												
ALLEN		13	9	6	3	4	3	5	6	1		
BOURBON		13	8	7	6	1	6	4	5			
BUTLER	1	11	6	10	2	6	4	3	2	5		
CHAUTAUQUA	4	6	11	6	5	4	7	5	2			
CHEROKEE	1	10	14	4	5	4	1	6	4	1		
COWLEY	2	8	10	7	2	4	4	6	2	4		1
CRAWFORD		13	10	6	5	2	4	5	4	1		
ELK	4	11	9	4	4	6	6	4	2			
GREENWOOD	3	8	9	6	2	5	5	6	4	2		
LABETTE	1	11	11	8	4	2	4	5	4			
MONTGOMERY	1	8	14	5	5	3	2	4	6	2		
NEOSHO	1	11	11	6	5	1	3	3	8	1		
WILSON	1	10	11	6	4	2	4	3	5	4		
WOODSON	1	13	10	4	7	2	5	6	2			

TABLE 9. FREQUENCY DISTRIBUTION OF INDEXED VALUE PER ACRE OF ALL CROPS HARVESTED BY COUNTY, 1910-1959.

DOLLARS PER ACRE	0 TO $3.99	4.00 TO 7.99	8.00 TO 11.99	12.00 TO 15.99	16.00 TO 19.99	20.00 TO 23.99	24.00 TO 27.99	28.00 TO 31.99	32.00 TO 35.99	36.00 TO 39.99	40.00 TO 43.99	44.00 OR OVER
NORTHWEST												
CHEYENNE	1	2	7	10	5	8	3	5	5	1	1	2
DECATUR	2	9	4	5	3	10	2	5	8	1		1
GRAHAM	7	3	6	6	7	9	11			1		
NORTON	1	7	8	4	5	7	10	6	1	1		
RAWLINS	1	5	4	9	3	8	6	2	4	5	2	1
SHERIDAN	4	7	5	4	8	10	3	5	3			1
SHERMAN	4	6	6	4	11	6	2	5	2	4		
THOMAS	2	9	4	8	6	7	3	2	5	2	1	1
WEST CENTRAL												
GOVE	4	4	10	5	3	11	6	2	2	2		1
GREELEY	5	5	9	10	9	5		3	2	1	1	
LANE	3	5	11	4	4	7	10	1	1	2	2	
LOGAN	2	9	8	7	8	8	3	1	3		1	
NESS	2	7	7	5	8	9	5	4	2		1	
SCOTT	1	8	9	5	4	8	6	3	1	1	3	1
TREGO	2	5	8	7	8	9	4	4	2		1	
WALLACE	6	5	7	14	6	2	3	3	2	2		
WICHITA	6	6	7	6	5	8	6		1	3		2

TABLE 9. CONT.

DOLLARS PER ACRE	0 TO $3.99	4.00 TO 7.99	8.00 TO 11.99	12.00 TO 15.99	16.00 TO 19.99	20.00 TO 23.99	24.00 TO 27.99	28.00 TO 31.99	32.00 TO 35.99	36.00 TO 39.99	40.00 TO 43.99	44.00 OR OVER
SOUTHWEST												
CLARK	1	6	9	4	10	7	5	4	2	2		
FINNEY		4	4	1	5	7	13	7	5	3	1	
FORD		5	6	10	11	4	4	5	2	3		
GRANT	1	7	4	6	11	6	6	5	2		2	
GRAY		7	9	9	7	5	5	4	3		1	
HAMILTON	1	5	6	8	9	6	6	3	3	2		1
HASKELL	2	6	11	5	7	5	3	8	2		1	
HODGEMAN	2	8	6	9	11	3	6	4		1		
KEARNEY		2	3	8	7	10	9	5	1	1	4	
MEADE		3	12	11	6	5	4	3	5	1		
MORTON	3	4	7	8	9	12	2	5				
SEWARD		3	9	7	12	10	4	3	1	1		
STANTON	1	5	6	4	7	11	6	4	2		2	2
STEVENS		4	10	8	5	9	9	5				
NORTH CENTRAL												
CLAY			1	6	6	11	13	7	5	1		
CLOUD		1	3	4	11	6	14	7	3	1		
JEWELL		3	3	9	9	10	8	6	1	1		
MITCHELL		3	4	4	9	11	10	5	2	1	1	
OSBORNE		6	4	8	8	9	12	2		1		
OTTAWA		1	1	9	4	11	12	8	3		1	
PHILLIPS		7	5	6	10	10	10	1		1		
REPUBLIC			4	5	10	10	8	10	2	1		
ROOKS	1	6	7	6	8	12	8		1	1		
SMITH		5	6	5	12	9	5	7		1		
WASHINGTON			2	8	10	7	9	8	5		1	

TABLE 9. CONT.

DOLLARS PER ACRE	0 TO $3.99	4.00 TO 7.99	8.00 TO 11.99	12.00 TO 15.99	16.00 TO 19.99	20.00 TO 23.99	24.00 TO 27.99	28.00 TO 31.99	32.00 TO 35.99	36.00 TO 39.99	40.00 TO 43.99	44.00 OR OVER
CENTRAL												
BARTON		1	2	8	8	11	9	6	2	2	1	
DICKINSON				3	6	11	11	15	2	1	1	
ELLIS	1	4	5	9	10	7	8	3	2		1	
ELLSWORTH		3	2	8	7	15	4	8	2		1	
LINCOLN		4	3	6	8	11	5	8	4		1	
MCPHERSON			1	4	9	7	12	11	3	2	1	
MARION			1	3	11	14	15	4	1	1		
RICE			1	5	13	9	7	9	4	2		
RUSH	1	2	9	6	10	9	5	5	1	1		1
RUSSELL	1	3	4	12	7	11	5	3	2	1	1	
SALINE			1	3	6	11	11	14	2	1	1	
SOUTH CENTRAL												
BARBER		3	1	8	9	12	10	5	1	1		
COMANCHE		3	5	12	12	6	4	6	2			
EDWARDS		1	6	10	13	6	7	4	2	1		
HARPER		1	1	6	12	10	11	4	3	1	1	
HARVEY				3	5	15	11	11	2	2	1	
KINGMAN			2	11	7	17	8	2	3			
KIOWA		3	5	14	8	9	6	3	1	1		
PAWNEE		1	2	8	11	12	6	5	2	2	1	
PRATT				11	8	14	9	5	1	2		
RENO				6	8	9	13	7	5	1	1	
SEDGWICK				4	10	8	11	12	3		2	
STAFFORD			2	6	11	15	8	6	1	1		
SUMNER			2	5	13	9	11	6	1	1	2	

TABLE 9. CONT.

DOLLARS PER ACRE	0 TO $3.99	4.00 TO 7.99	8.00 TO 11.99	12.00 TO 15.99	16.00 TO 19.99	20.00 TO 23.99	24.00 TO 27.99	28.00 TO 31.99	32.00 TO 35.99	36.00 TO 39.99	40.00 TO 43.99	44.00 OR OVER
NORTHEAST												
ATCHISON				3	5	12	4	9	6	11		
BROWN				1	3	9	10	6	9	5	5	2
DONIPHAN					4	5	3	7	9	3	6	13
JACKSON			2	6	10	8	5	13	4	2		
JEFFERSON				1	7	9	10	7	9	6	1	
LEAVENWORTH				2	7	6	7	9	11	6	1	1
MARSHALL			2	7	4	9	10	9	5	3	1	
NEMAHA			2	5	6	10	7	8	5	5	1	1
POTTAWATOMIE		1	1	5	3	9	9	9	9	4		
RILEY			1	5	4	1	14	9	10	5	1	
WYANDOTTE							2	3	7	8	3	27
EAST CENTRAL												
ANDERSON			4	4	10	11	13	3	3	1	1	
CHASE		3	2		3	3	15	10	7	4	3	
COFFEY			4	3	5	16	14	4	2	1	1	
DOUGLAS					4	6	9	9	9	9	3	1
FRANKLIN			3	4	8	12	7	10	3	1	2	
GEARY		1	2	3	1	10	11	10	9	2	1	
JOHNSON				2	7	9	6	8	7	8	2	1
LINN		1	4	7	8	11	8	7	2	2		
LYON			2	4	2	13	14	9	3	2	1	
MIAMI			1	8	7	11	6	11	3	1	2	
MORRIS		1	3	3	2	14	14	8	4	1		
OSAGE			2	6	6	9	11	7	6	2	1	
SHAWNEE				1	4	5	9	10	8	9	3	1
WABAUNSEE		1	3	4	2	10	7	15	7	1		

TABLE 9. CONCL.

DOLLARS PER ACRE	0 TO $3.99	4.00 TO 7.99	8.00 TO 11.99	12.00 TO 15.99	16.00 TO 19.99	20.00 TO 23.99	24.00 TO 27.99	28.00 TO 31.99	32.00 TO 35.99	36.00 TO 39.99	40.00 TO 43.99	44.00 OR OVER
SOUTHEAST												
ALLEN			2	6	11	14	11	3	1	2		
BOURBON			2	8	9	16	10	3		2		
BUTLER		1	2	7	5	16	10	5	3	1		
CHAUTAUQUA		3	2	4	14	16	7	2	2			
CHEROKEE			2	9	16	7	13	1		2		
COWLEY			3	3	10	13	10	7	1	3		
CRAWFORD			3	7	13	15	7	3		2		
ELK		3	4	4	15	17	4	3				
GREENWOOD		3	3	3	6	10	16	5	1	3		
LABETTE			2	11	13	13	6	3	2			
MONTGOMERY				5	13	18	7	4	1	2		
NEOSHO			3	6	12	14	6	7	1	1		
WILSON		1	3	4	7	19	8	4	2	2		
WOODSON			5	10	11	15	6	2	1			

TABLE 10. AVERAGE GROSS VALUE OF ALL CROPS PER CROP ACRE WITH STANDARD DEVIATION AND AVERAGE YEAR-TO-YEAR CHANGE ON FARM MANAGEMENT ASSOCIATION FARMS WITH 10 OR MORE RECORDS 1948-1959.

ASSOCIATION	NUMBER OF FARMS	NUMBER OF OBSERVATIONS	AVERAGE NUMBER OF OBS. PER FARM	AVERAGE GROSS VALUE	STANDARD DEVIATION	AVERAGE YEAR-TO-YEAR CHANGE	NUMBER OF OBS. OF IRRIGATION	AVERAGE NUMBER OF OBS. OF IRRIGATION PER FARM
ALL FARMS								
1	52	621	11.9	32.34	15.92	10.98	20	.4
2	57	684	12.0	31.56	12.76	11.37	27	.5
3	29	347	12.0	20.75	11.72	10.58	20	.7
4	36	431	12.0	39.13	14.71	10.76		.0
5	58	585	10.1	19.86	10.98	8.22	66	1.1
6	55	593	10.8	33.10	12.81	10.40	2	.0
FARMS WITH NO LAND IRRIGATED								
1	42	501	11.9	30.01	13.98	9.74		
2	47	564	12.0	30.66	12.30	11.15		
3	24	287	12.0	20.57	12.10	10.42		
4	36	431	12.0	39.13	14.71	10.76		
5	40	404	10.1	18.38	9.40	8.36		
6	53	571	10.8	32.81	12.73	10.35		
FARMS WITH SOME LAND IRRIGATED								
1	10	120	12.0	42.08	19.54	16.28	20	2.0
2	10	120	12.0	35.79	14.03	12.47	27	2.7
3	5	60	12.0	21.59	9.76	11.54	20	4.0
4								
5	18	181	10.1	23.17	13.32	7.94	66	3.7
6	2	22	11.0	40.72	12.84	12.41	2	1.0

TABLE 11. AVERAGE CROP COST PER CROP ACRE WITH STANDARD DEVIATION ON FARM MANAGEMENT ASSOCIATION FARMS, 1956-1959.

ASSOCIATION	NUMBER OF FARMS	NUMBER OF OBSERVATIONS	AVERAGE NUMBER OF OBS. PER FARM	AVERAGE CROP COST PER CROP ACRE	STANDARD DEVIATION	NUMBER OF OBS. OF IRRIGATION	AVERAGE NUMBER OF OBS. OF IRRIGATION PER FARM
ALL FARMS							
1	52	206	4.0	20.79	11.00	20	.4
2	57	227	4.0	17.48	6.23	27	.5
3	29	86	3.0	11.11	4.60	20	.7
4	36	144	4.0	22.41	6.59		
5	58					66	1.1
6	55	210	3.8	23.67	9.55	2	.0
FARMS WITH NO LAND IRRIGATED							
1	42	166	4.0	19.91	11.37		
2	47	187	4.0	16.51	5.50		
3	24	71	3.0	10.43	4.45		
4	36	144	4.0	22.41	6.59		
5	40						
6	53	202	3.8	23.68	9.63		
FARMS WITH SOME LAND IRRIGATED							
1	10	40	4.0	24.41	8.50	20	2.0
2	10	40	4.0	22.04	7.39	27	2.7
3	5	15	3.0	14.30	4.03	20	4.0
4							
5	18					66	3.7
6	2	8	4.0	23.38	7.58	2	1.0

TABLE 12. AVERAGE NET VALUE OF ALL CROPS PER CROP ACRE AND STANDARD DEVIATION ON FARM MANAGEMENT ASSOCIATION FARMS, 1956-1959.

ASSOCIATION	NUMBER OF FARMS	NUMBER OF OBSERVATIONS	AVERAGE NUMBER OF OBS. PER FARM	AVERAGE NET VALUE OF CROPS PER ACRE	STANDARD DEVIATION	NUMBER OF OBS. OF IRRIGATION	AVERAGE NUMBER OF OBS. OF IRRIGATION PER FARM
ALL FARMS							
1	52	205	3.9	9.54	14.19	20	.4
2	57	227	4.0	15.70	10.23	27	.5
3	29	86	3.0	10.89	8.60	20	.7
4	36	144	4.0	16.18	13.19		
5	58					66	1.1
6	55	209	3.8	10.63	13.20	2	
FARMS WITH NO LAND IRRIGATED							
1	42	165	3.9	7.76	13.42		
2	47	187	4.0	15.67	10.24		
3	24	71	3.0	11.34	8.81		
4	36	144	4.0	16.18	13.19		
5	40						
6	53	201	3.8	10.37	13.21		
FARMS WITH SOME LAND IRRIGATED							
1	10	40	4.0	16.92	15.05	20	2.0
2	10	40	4.0	15.80	10.29	27	2.7
3	5	15	3.0	8.77	7.44	20	4.0
4							
5	18					66	3.7
6	2	8	4.0	17.09	11.98	2	1.0

TABLE 13. AVERAGE WHEAT YIELD WITH STANDARD DEVIATION AND AVERAGE YEAR-TO-YEAR CHANGE, 1937-1959.

COUNTY	PER ACRE HARVESTED			PER ACRE SEEDED		
	AVERAGE YIELD, BUSHELS	STANDARD DEVIATION	YEAR-TO-YEAR CHANGE, BUSHELS	AVERAGE YIELD, BUSHELS	STANDARD DEVIATION	YEAR-TO-YEAR CHANGE, BUSHELS
NORTHWEST						
CHEYENNE	19.2	6.9	6.2	16.8	7.6	7.5
DECATUR	17.8	7.4	7.0	16.1	7.9	8.0
GRAHAM	13.3	4.8	4.5	11.6	5.4	5.7
NORTON	16.4	6.1	5.4	14.8	6.7	6.4
RAWLINS	19.0	6.9	7.4	16.9	7.7	8.8
SHERIDAN	15.4	6.3	6.6	12.7	7.1	8.1
SHERMAN	16.0	7.1	5.2	13.2	7.9	6.5
THOMAS	16.8	7.0	7.1	13.9	8.2	8.8
WEST CENTRAL						
GOVE	14.3	7.3	7.5	12.0	8.3	9.1
GREELEY	13.3	7.5	7.0	10.4	8.9	8.7
LANE	14.0	6.9	7.4	11.7	8.0	9.0
LOGAN	13.9	6.7	5.7	10.9	7.9	7.5
NESS	12.5	5.8	5.9	10.6	6.6	6.9
SCOTT	15.8	7.2	5.9	12.6	7.9	7.4
TREGO	13.0	5.9	5.9	11.1	6.7	7.4
WALLACE	14.7	7.9	6.8	11.5	8.5	7.3
WICHITA	14.7	7.4	6.7	12.1	8.0	7.6
SOUTHWEST						
CLARK	12.8	5.9	6.3	11.0	6.7	7.1
FINNEY	15.1	6.8	5.9	12.2	7.6	6.6
FORD	12.2	5.9	6.4	10.5	6.8	7.2
GRANT	14.2	7.4	5.7	11.1	8.3	6.4
GRAY	12.8	6.2	6.4	10.3	7.1	7.2
HAMILTON	14.0	7.8	7.0	10.6	9.3	8.4
HASKELL	11.9	5.4	5.0	9.7	6.5	5.7
HODGEMAN	11.2	5.7	6.2	9.2	6.7	7.5
KEARNEY	15.8	8.5	7.5	12.4	9.4	8.3
MEADE	12.7	5.8	6.1	10.6	6.8	7.0
MORTON	11.7	6.8	4.0	8.5	7.2	4.1
SEWARD	12.2	5.5	4.9	9.8	6.3	6.1
STANTON	16.3	8.4	7.0	13.4	8.9	7.1
STEVENS	13.3	6.5	3.6	10.8	6.9	4.7
NORTH CENTRAL						
CLAY	17.5	4.2	3.3	16.6	4.3	3.7
CLOUD	16.2	4.7	4.8	15.0	5.3	5.4
JEWELL	14.8	4.8	5.4	13.2	5.6	6.5
MITCHELL	15.2	4.9	5.3	13.8	5.7	6.0
OSBORNE	13.5	4.9	5.3	12.3	5.5	5.8
OTTAWA	17.0	4.7	3.5	16.2	5.0	3.6
PHILLIPS	13.6	5.2	4.9	11.7	5.6	5.7
REPUBLIC	16.5	4.7	5.5	15.4	5.1	6.2
ROOKS	13.0	4.4	4.0	11.7	4.7	4.5
SMITH	14.1	5.3	5.6	12.4	5.8	6.6
WASHINGTON	17.9	5.2	5.0	17.0	5.4	5.3
CENTRAL						
BARTON	14.7	5.1	5.6	13.4	5.7	6.3
DICKINSON	17.7	4.9	3.9	16.8	5.2	4.3
ELLIS	12.4	5.9	6.8	11.0	6.3	7.0
ELLSWORTH	15.3	5.3	5.5	14.3	5.9	6.1
LINCOLN	15.2	5.4	5.4	13.8	6.2	6.3
MCPHERSON	17.8	4.4	5.1	17.2	4.4	5.2
MARION	16.5	5.3	4.1	16.0	5.4	4.0
RICE	16.3	4.4	4.9	15.2	4.7	5.2
RUSH	13.1	6.1	7.2	11.9	6.7	7.8
RUSSELL	13.6	5.7	6.0	12.2	6.4	6.9
SALINE	17.4	4.5	3.6	16.5	4.7	3.7

TABLE 13. CONCL.

COUNTY	PER ACRE HARVESTED			PER ACRE SEEDED		
	AVERAGE YIELD, BUSHELS	STANDARD DEVIATION	YEAR-TO-YEAR CHANGE, BUSHELS	AVERAGE YIELD, BUSHELS	STANDARD DEVIATION	YEAR-TO-YEAR CHANGE, BUSHELS
SOUTH CENTRAL						
BARBER	15.0	4.9	5.0	13.9	5.3	5.4
COMANCHE	12.7	5.0	5.3	11.4	5.8	6.2
EDWARDS	13.0	5.0	5.9	11.5	5.9	7.0
HARPER	15.8	5.0	5.5	15.0	5.2	5.9
HARVEY	17.7	5.8	6.0	17.0	5.9	6.2
KINGMAN	14.2	3.9	4.8	13.4	4.1	5.3
KIOWA	13.2	5.2	6.2	11.8	6.0	7.1
PAWNEE	14.0	5.6	6.8	12.4	6.1	7.3
PRATT	14.4	4.9	7.1	13.2	5.7	8.0
RENO	16.5	4.6	6.1	15.5	4.7	6.3
SEDGWICK	17.0	5.4	5.9	16.2	5.6	6.2
STAFFORD	14.3	4.0	5.7	12.6	4.6	6.6
SUMNER	16.4	5.4	5.4	15.6	5.6	5.7
NORTHEAST						
ATCHISON	19.8	6.9	4.3	19.0	7.1	4.6
BROWN	22.4	6.5	5.6	21.8	6.6	5.8
DONIPHAN	20.9	7.4	4.9	20.2	7.7	4.9
JACKSON	19.4	6.7	3.1	18.7	7.2	3.4
JEFFERSON	20.7	6.5	4.2	19.7	7.2	4.7
LEAVENWORTH	19.6	6.7	4.1	18.7	6.9	4.3
MARSHALL	18.7	5.9	5.8	18.0	6.1	6.0
NEMAHA	21.2	6.5	5.7	20.4	6.4	5.8
POTTAWATOMIE	21.2	5.1	4.0	20.3	5.5	4.4
RILEY	20.5	4.7	3.7	19.6	4.9	4.0
WYANDOTTE	21.2	6.8	3.5	20.5	7.2	3.9
EAST CENTRAL						
ANDERSON	20.4	7.4	4.9	19.5	8.0	5.3
CHASE	21.8	4.8	4.3	20.6	5.4	5.1
COFFEY	19.4	7.8	5.9	18.0	8.4	6.4
DOUGLAS	21.3	7.0	4.5	20.2	7.8	5.1
FRANKLIN	19.7	7.3	4.7	18.5	8.0	5.2
GEARY	21.3	5.4	4.1	20.4	5.8	4.6
JOHNSON	20.2	7.5	3.9	19.2	8.0	4.4
LINN	18.4	6.2	5.1	17.3	6.9	5.2
LYON	19.3	7.2	5.3	18.1	7.8	5.9
MIAMI	19.3	7.1	4.4	18.0	7.6	4.9
MORRIS	18.0	5.8	4.3	17.4	6.0	4.2
OSAGE	20.0	7.6	4.7	19.0	8.1	4.7
SHAWNEE	22.4	6.4	4.7	21.5	6.8	4.9
WABAUNSEE	20.9	5.5	3.5	20.1	5.7	3.7
SOUTHEAST						
ALLEN	19.4	7.2	5.1	18.1	7.8	5.2
BOURBON	17.1	6.1	5.0	16.3	6.4	5.0
BUTLER	17.4	5.5	5.6	16.1	5.9	6.1
CHAUTAUQUA	17.0	6.6	6.2	15.4	7.2	7.1
CHEROKEE	16.2	5.9	4.5	15.4	6.0	4.7
COWLEY	18.6	5.3	5.6	17.6	5.6	6.1
CRAWFORD	16.5	6.0	3.4	15.7	6.3	3.3
ELK	18.0	6.3	5.5	16.8	6.9	6.3
GREENWOOD	19.2	5.9	5.8	17.9	6.5	6.3
LABETTE	16.2	6.3	4.9	15.4	6.6	5.1
MONTGOMERY	16.8	6.7	5.5	15.8	7.1	6.0
NEOSHO	18.0	6.7	5.7	16.7	7.3	5.9
WILSON	18.8	6.0	5.6	17.7	6.5	6.0
WOODSON	17.8	7.1	4.9	16.6	7.8	5.7

TABLE 14. FREQUENCY DISTRIBUTION OF WHEAT YIELD PER ACRE HARVESTED AND AVERAGE YIELD, 1937-1959.

BUSHELS PER ACRE	0 TO 5.9	6.0 TO 7.9	8.0 TO 9.9	10.0 TO 11.9	12.0 TO 13.9	14.0 TO 15.9	16.0 TO 17.9	18.0 TO 19.9	20.0 TO 21.9	22.0 TO 23.9	24.0 TO 25.9	26.0 OR OVER	AVERAGE YIELD BUSHELS
NORTHWEST													
CHEYENNE			3	2		4	1	1	3	1	4	4	19.2
DECATUR	3			2	1	2	3	2	3	3	2	2	17.8
GRAHAM	3		1	3	6	4	3	2			1		13.3
NORTON	2	1	1	1	1	2	5	3	4	1	1	1	16.4
RAWLINS			4	1		2	4		1	4	4	3	19.0
SHERIDAN	1	2		5	2	3	1	5		3		1	15.4
SHERMAN	2	2	1	4	1		2	4	1	2	3	1	16.0
THOMAS	1	1	2	2	2	3	1	2	2	4	2	1	16.8
WEST CENTRAL													
GOVE	3	2	3	1	2	4	1	2	1	1		3	14.3
GREELEY	4	1	4	5	1	1		1	3		1	2	13.3
LANE	2	4	1	2	4	3	1	1	1	1	2	1	14.0
LOGAN	3	2	2	3	2	4	1	1	2	1	1	1	13.9
NESS	3	2	2	3	7		3		2			1	12.5
SCOTT	2		5	2	2	2	2	2		1	2	3	15.8
TREGO	2	3	3	2	4	2	3	2		1		1	13.0
WALLACE	4	1	4	1	1	3		3	1		3	2	14.7
WICHITA	2	3	2	3	2	2	2		2		3	2	14.7
SOUTHWEST													
CLARK	1	4	4	1	4	4	1	1		2		1	12.8
FINNEY	2		3	3	2	5	1	2	1	2		2	15.1
FORD	3	2	5	4	1	1	2	1	2	2			12.2
GRANT	1	4	3	4	2	1	1		2	2		3	14.2
GRAY	3	3	2	4	3	1	1	1	4			1	12.8
HAMILTON	3	4	2	4	1	1	1		2	2	1	2	14.0
HASKELL	2	5	2	4	1	1	4	2	2				11.9
HODGEMAN	3	4	4	5		1	1	3	1	1			11.2
KEARNEY	1	3	3	3	3	2		1	1		1	5	15.8
MEADE	4	1	5		3	3	2	2	1	2			12.7
MORTON	5	3	1	2	5	2	1		3			1	11.7
SEWARD	3	4	2	2	3	3	3		1	1	1		12.2
STANTON	2	3	3	1	1	2	2		2	2		5	16.3
STEVENS	1	4	4	2	1	3	3	2		1	1	1	13.3

TABLE 14. CONT.

BUSHELS PER ACRE	0 TO 5.9	6.0 TO 7.9	8.0 TO 9.9	10.0 TO 11.9	12.0 TO 13.9	14.0 TO 15.9	16.0 TO 17.9	18.0 TO 19.9	20.0 TO 21.9	22.0 TO 23.9	24.0 TO 25.9	26.0 OR OVER	AVERAGE YIELD BUSHELS
NORTH CENTRAL													
CLAY			1		5	2	4	5	4		1	1	17.5
CLOUD			1	2	6	4	3	2	2	1	1	1	16.2
JEWELL			4	3	5	2	3	3		2		1	14.8
MITCHELL			2	5	3	4	5		1	1	1	1	15.2
OSBORNE		4	3	1	4	5	2	2	1		1		13.5
OTTAWA			2	2	1	4	5	4	3		1	1	17.0
PHILLIPS	2	1		5	7		5	1	1			1	13.6
REPUBLIC		1		3	4	4	1	6	1	2		1	16.5
ROOKS	2		2	4	5	6	3				1		13.0
SMITH	1	2	2	2	6	3	1	3	1	1		1	14.1
WASHINGTON				3	2	2	6	5		2	2	1	17.9
CENTRAL													
BARTON	1		4	3	3	2	5	1	3			1	14.7
DICKINSON				1	3	7	2	5	1	1	1	2	17.7
ELLIS	3	3	3	3	1	3	3	3				1	12.4
ELLSWORTH		1	4	2	1	2	7	3	1	1		1	15.3
LINCOLN		2	2	2	6		3	4	2	1		1	15.2
MCPHERSON			1	1	3	3	4	4	4	1	1	1	17.8
MARION			2	4	1	5	4	2	1	1	2	1	16.5
RICE			3	2	1	3	5	6	1	1		1	16.3
RUSH	3	3		5	2	3	2	3	1			1	13.1
RUSSELL	1	2	5	2	4	2		5			1	1	13.6
SALINE			1	2		7	3	4	3	1	1	1	17.4
SOUTH CENTRAL													
BARBER	1		1	4	4	3	5	2	1	1		1	15.0
COMANCHE		3	6	4	1	4	1	2	1		1		12.7
EDWARDS	1	1	6	3	3	4		3	1		1		13.0
HARPER		2		5		4	6	3		2		1	15.8
HARVEY			1	4	2	2	5		2	4	2	1	17.7
KINGMAN	1	1	1	1	5	9	2		2	1			14.2
KIOWA	1	3	3	2	3	5	2	1	1	1	1		13.2
PAWNEE		1	6	3	5		2	2	2	1		1	14.0
PRATT		1	5	1	3	3	7		1	1		1	14.4
RENO		1	2		3	3	5	5	2	1		1	16.5
SEDGWICK			3	1	4		5	3	5			2	17.0
STAFFORD			4	3	5	2	6	2			1		14.3
SUMNER			2	2	4	3	5	3	1		1	2	16.4

TABLE 14. CONCL.

BUSHELS PER ACRE	0 TO 5.9	6.0 TO 7.9	8.0 TO 9.9	10.0 TO 11.9	12.0 TO 13.9	14.0 TO 15.9	16.0 TO 17.9	18.0 TO 19.9	20.0 TO 21.9	22.0 TO 23.9	24.0 TO 25.9	26.0 OR OVER	AVERAGE YIELD BUSHELS
NORTHEAST													
ATCHISON			1		4	2	5	2	1	1	3	4	19.8
BROWN				1	1		2	6	4	1	1	7	22.4
DONIPHAN			1	1	1	4	2	2	4		2	6	20.9
JACKSON				2	3	4	4	2		2	2	4	19.4
JEFFERSON				2	3		3	4	2	4		5	20.7
LEAVENWORTH			2	2	2		4	3	4	1		5	19.6
MARSHALL			1		4	3	3	4	2	2	1	3	18.7
NEMAHA				2	1		5	2	4	3	3	3	21.2
POTTAWATOMIE						4	4	1	4	3	3	4	21.2
RILEY						4	6	1	4	3	2	3	20.5
WYANDOTTE					4	2	2	4	2	3		6	21.2
EAST CENTRAL													
ANDERSON				3	3	1	3	1	3	2	2	5	20.4
CHASE						1	4	4	4	3	4	3	21.8
COFFEY			1	4	2	1	3	3	2	3		4	19.4
DOUGLAS				1	3	1	1	5	4		2	6	21.3
FRANKLIN			2	2	1	2	5	1	2	3	1	4	19.7
GEARY						3	6	1	1	4	2	6	21.3
JOHNSON			2	1	2	3	1	4	2	1	2	5	20.2
LINN		1	2		4	3	1	1	3	3	1	4	18.4
LYON			1	4	2	1	2	4	1	3	1	4	19.3
MIAMI			1	4		3	3	3	2	1	1	5	19.3
MORRIS			1	3	4	2	1	4	1	2	3	2	18.0
OSAGE			2	2	1	3	2	4		4		5	20.0
SHAWNEE					1	3	2	3	4	2	2	6	22.4
WABAUNSEE					1	3	6	2	1	5		5	20.9
SOUTHEAST													
ALLEN				4	5		2	1	3	1	3	4	19.4
BOURBON			3	3	2	3		5	1	3		3	17.1
BUTLER			1	3	3	3	2	4		4	2	1	17.4
CHAUTAUQUA		1	1	2	5	4	2	2	1		2	3	17.0
CHEROKEE			3	4	2	4		3	2	2		3	16.2
COWLEY			1	1	3	2	3	4	5		2	2	18.6
CRAWFORD			1	6	4	3	2	1			4	2	16.5
ELK				3	5	3	1	3	2	2	1	3	18.0
GREENWOOD				2	2	4	4	3	2	1	2	3	19.2
LABETTE		1	1	4	7	1	1		2	2	1	3	16.2
MONTGOMERY		1	2	2	6	2	2	1	1		3	3	16.8
NEOSHO			2	1	6	3	1	1	3	1		5	18.0
WILSON				1	4	6	1	2	2	2	2	3	18.8
WOODSON			2	5	2	1	3	1	4	1		4	17.8

TABLE 15. AVERAGE YIELDS AND STANDARD DEVIATION OF SIX PRINCIPAL CROPS GROWN ON FARM MANAGEMENT ASSOCIATION FARMS BY ASSOCIATION, 1948-1959.

CROP	ASSOCIATION	NUMBER OF FARMS	NUMBER OF OBSERVATIONS	AVERAGE NUMBER OF OBS. PER FARM	AVERAGE YIELD, BUSHELS OR TONS	STANDARD DEVIATION
WHEAT	1	52	585	11.3	22.4	10.2
	2	57	674	11.8	20.8	9.2
	3	29	328	11.3	14.4	8.5
	4	36	397	11.0	27.3	10.2
	5	58	545	9.4	19.0	10.2
	6	55	512	9.3	25.4	11.2
CORN	1	52	392	7.5	36.4	20.7
	2	57	66	1.2	28.1	16.3
	3	29	4	.1	24.5	5.0
	4	36	327	9.1	38.4	17.5
	5	58	100	1.7	24.8	20.9
	6	55	343	6.2	37.0	19.3
GRAIN SORGHUM	1	52	328	6.3	28.8	20.4
	2	57	420	7.4	25.7	20.1
	3	29	200	6.9	19.4	14.6
	4	36	183	5.1	33.2	17.8
	5	58	445	7.7	20.4	17.5
	6	55	263	4.8	27.8	19.9
SOYBEANS	1	52	4	.1	8.7	3.4
	2	57	22	.4	10.9	10.9
	3	29		.0	.0	.0
	4	36	67	1.9	19.2	10.2
	5	58	29	.5	24.7	15.0
	6	55	173	3.1	13.1	8.2
ALFALFA	1	52	569	10.9	2.06	1.21
	2	57	587	10.3	1.71	1.05
	3	29	119	4.1	2.06	1.27
	4	36	355	9.9	2.20	1.21
	5	58	202	3.5	2.36	1.66
	6	55	510	9.3	2.00	1.08
SILAGE	1	52	439	8.4	9.1	7.3
	2	57	482	8.5	7.9	5.1
	3	29	172	5.9	6.9	5.1
	4	36	255	7.1	9.1	5.3
	5	58	404	7.0	6.3	5.1
	6	55	453	8.2	8.4	6.7

TABLE 16. WHEAT YIELD PER ACRE HARVESTED WITH STANDARD DEVIATION AND AVERAGE YEAR-TO-YEAR CHANGE, 1947-1959.

	WHEAT ON FALLOW			CONTINUOUS WHEAT		
COUNTY	AVERAGE YIELD, BUSHELS	STANDARD DEVIATION	YEAR-TO-YEAR CHANGE, BUSHELS	AVERAGE YIELD, BUSHELS	STANDARD DEVIATION	YEAR-TO-YEAR CHANGE, BUSHELS
NORTHWEST						
CHEYENNE	20.0	7.1	7.0	12.5	5.2	5.0
DECATUR	22.8	6.8	9.3	14.2	4.8	5.1
GRAHAM	16.5	4.6	6.2	10.9	3.5	4.1
NORTON	20.2	5.0	6.7	13.5	4.4	5.1
RAWLINS	22.5	7.5	10.0	13.4	5.4	6.3
SHERIDAN	20.2	6.4	8.5	11.8	4.2	5.5
SHERMAN	18.9	7.6	6.8	10.3	5.9	5.1
THOMAS	20.8	7.3	10.5	12.6	5.6	7.0
WEST CENTRAL						
GOVE	17.7	8.3	9.8	11.1	6.2	7.4
GREELEY	16.3	9.3	7.6	10.0	6.8	5.1
LANE	17.0	7.5	9.2	11.2	6.6	8.1
LOGAN	16.9	7.5	7.0	10.4	6.1	5.7
NESS	17.3	6.9	9.0	11.3	5.1	6.5
SCOTT	17.3	8.5	7.7	14.4	6.2	7.4
TREGO	17.6	6.8	8.4	10.3	5.0	5.8
WALLACE	16.6	8.6	9.0	10.5	7.2	7.3
WICHITA	16.4	8.8	8.1	11.3	6.3	7.8
SOUTHWEST						
CLARK	16.4	7.0	8.3	11.2	6.0	6.2
FINNEY	17.6	6.7	6.4	12.3	5.5	6.4
FORD	15.7	6.9	7.6	10.7	5.9	6.3
GRANT	16.8	8.2	6.2	13.3	5.9	6.9
GRAY	14.9	7.7	8.2	10.7	6.5	8.1
HAMILTON	16.1	9.0	7.3	10.1	5.8	5.5
HASKELL	13.5	6.9	6.2	10.1	5.7	6.9
HODGEMAN	14.8	7.0	8.4	9.9	5.1	5.5
KEARNEY	17.4	9.1	7.1	13.6	6.4	7.3
MEADE	13.7	6.8	6.7	10.3	6.7	7.6
MORTON	15.0	7.8	6.3	9.6	6.1	4.5
SEWARD	13.3	7.0	6.6	10.4	5.9	7.5
STANTON	17.5	8.3	7.6	13.7	6.1	8.4
STEVENS	15.5	7.9	6.1	10.6	5.7	5.6
NORTH CENTRAL						
CLAY	22.5	5.0	4.2	18.6	4.6	3.1
CLOUD	21.3	6.3	5.9	16.7	5.2	5.5
JEWELL	19.8	5.4	6.4	14.6	5.5	6.9
MITCHELL	19.9	6.3	7.7	14.6	5.2	6.3
OSBORNE	17.4	5.2	6.7	12.0	5.2	6.6
OTTAWA	22.8	6.4	8.0	17.6	5.6	4.2
PHILLIPS	18.0	5.3	6.8	12.3	4.9	5.9
REPUBLIC	22.3	5.5	6.9	17.4	4.9	6.1
ROOKS	17.3	4.6	6.1	11.4	4.0	4.7
SMITH	19.0	5.4	7.2	13.0	5.0	7.2
WASHINGTON	24.7	6.5	6.1	19.5	5.9	5.9

TABLE 16. CONCL.

COUNTY	WHEAT ON FALLOW			CONTINUOUS WHEAT		
	AVERAGE YIELD, BUSHELS	STANDARD DEVIATION	YEAR-TO-YEAR CHANGE, BUSHELS	AVERAGE YIELD, BUSHELS	STANDARD DEVIATION	YEAR-TO-YEAR CHANGE, BUSHELS
CENTRAL						
BARTON	19.4	5.3	7.5	14.1	5.1	6.9
DICKINSON	22.5	5.9	5.2	19.4	5.4	4.4
ELLIS	17.5	6.7	9.2	11.3	5.4	7.1
ELLSWORTH	20.6	5.1	6.8	15.7	4.7	6.1
LINCOLN	20.2	5.8	7.0	15.3	4.9	5.3
MCPHERSON	23.3	6.0	8.0	18.8	4.7	6.3
MARION	24.2	6.4	6.7	18.9	5.5	5.2
RICE	21.3	5.7	8.1	16.2	4.7	6.1
RUSH	17.2	7.2	9.4	12.6	5.9	7.4
RUSSELL	18.2	6.4	8.5	12.6	5.4	6.7
SALINE	22.7	4.7	5.6	18.8	4.4	3.7
SOUTH CENTRAL						
BARBER	20.2	5.7	6.4	14.9	5.9	5.8
COMANCHE	16.4	6.8	7.5	11.4	5.6	6.4
EDWARDS	15.9	6.4	8.4	11.5	5.2	6.9
HARPER	21.9	6.7	9.5	16.3	5.7	6.3
HARVEY	24.6	7.0	9.2	19.2	6.0	6.8
KINGMAN	19.5	5.3	7.2	14.3	4.6	6.1
KIOWA	16.7	6.6	9.1	11.9	5.3	6.6
PAWNEE	17.9	7.0	9.3	12.9	5.5	6.9
PRATT	18.2	6.1	9.5	13.0	5.5	8.8
RENO	21.2	5.1	6.2	17.1	5.4	7.6
SEDGWICK	22.9	5.9	7.5	18.3	6.0	7.1
STAFFORD	17.3	4.2	7.1	13.2	4.6	7.1
SUMNER	23.9	6.6	9.0	18.1	6.0	6.4

TABLE 17. WHEAT YIELD PER ACRE SEEDED WITH STANDARD DEVIATION AND AVERAGE YEAR-TO-YEAR CHANGE, 1947-1959.

COUNTY	WHEAT ON FALLOW			CONTINUOUS WHEAT		
	AVERAGE YIELD, BUSHELS	STANDARD DEVIA-TION	YEAR-TO-YEAR CHANGE, BUSHELS	AVERAGE YIELD, BUSHELS	STANDARD DEVIA-TION	YEAR-TO-YEAR CHANGE, BUSHELS
NORTHWEST						
CHEYENNE	17.2	8.0	8.5	9.8	5.7	6.3
DECATUR	21.5	7.1	10.0	12.3	5.3	6.1
GRAHAM	15.2	5.3	7.3	9.2	4.0	4.7
NORTON	19.2	5.1	7.0	11.9	4.4	4.9
RAWLINS	20.6	8.5	11.7	10.7	6.2	8.0
SHERIDAN	17.6	7.5	9.5	9.1	5.5	6.9
SHERMAN	15.6	9.2	8.6	8.1	6.5	5.9
THOMAS	18.1	9.1	12.1	9.7	7.5	9.4
WEST CENTRAL						
GOVE	15.4	9.5	11.8	9.4	6.9	8.0
GREELEY	13.3	11.4	9.4	7.9	7.6	6.1
LANE	14.8	8.9	10.8	9.1	7.1	8.7
LOGAN	13.7	9.2	9.1	8.2	6.5	6.3
NESS	15.3	8.3	11.4	9.2	6.1	7.8
SCOTT	14.4	10.2	9.7	10.1	6.8	7.3
TREGO	15.6	8.2	10.8	8.5	5.8	7.2
WALLACE	13.3	9.9	9.3	8.5	7.5	7.2
WICHITA	14.4	10.3	9.2	8.8	7.0	8.0
SOUTHWEST						
CLARK	14.8	8.0	9.3	9.6	6.7	7.0
FINNEY	14.4	8.5	8.4	9.3	6.7	7.0
FORD	14.3	7.9	8.8	9.3	6.5	7.2
GRANT	14.4	9.6	7.1	10.0	6.3	7.0
GRAY	12.6	9.3	10.3	8.3	7.1	7.8
HAMILTON	12.6	11.0	9.1	7.5	6.8	5.3
HASKELL	11.5	8.3	7.4	7.9	6.2	6.5
HODGEMAN	12.8	8.5	10.8	8.0	6.0	7.2
KEARNEY	14.0	11.0	8.4	9.3	7.9	6.9
MEADE	11.5	8.2	8.9	8.6	7.1	7.6
MORTON	11.7	9.4	6.3	7.0	7.0	3.8
SEWARD	11.3	8.3	9.0	7.8	6.1	7.6
STANTON	15.2	9.8	7.9	10.0	5.8	5.1
STEVENS	13.5	9.1	7.9	8.6	6.2	5.3
NORTH CENTRAL						
CLAY	22.5	5.0	4.2	17.8	4.8	3.6
CLOUD	19.7	7.3	8.0	15.4	6.0	6.5
JEWELL	18.6	6.3	7.0	13.2	6.2	7.9
MITCHELL	18.7	7.0	8.7	13.1	5.6	6.4
OSBORNE	16.1	5.7	7.6	10.8	5.6	7.2
OTTAWA	22.4	6.7	8.8	16.6	5.9	4.4
PHILLIPS	16.4	5.6	7.2	10.3	5.2	6.3
REPUBLIC	22.0	5.7	7.3	16.3	5.4	6.8
ROOKS	16.0	5.0	6.7	10.1	4.4	5.0
SMITH	17.4	6.0	7.8	11.3	5.7	8.5
WASHINGTON	24.7	6.5	6.2	18.6	6.0	6.0

TABLE 17. CONCL.

COUNTY	WHEAT ON FALLOW			CONTINUOUS WHEAT		
	AVERAGE YIELD, BUSHELS	STANDARD DEVIATION	YEAR-TO-YEAR CHANGE, BUSHELS	AVERAGE YIELD, BUSHELS	STANDARD DEVIATION	YEAR-TO-YEAR CHANGE, BUSHELS
CENTRAL						
BARTON	18.1	5.9	8.6	12.9	5.6	7.8
DICKINSON	22.1	6.5	5.2	18.4	5.9	4.8
ELLIS	16.0	7.3	10.1	9.9	5.9	7.2
ELLSWORTH	19.8	5.7	7.5	14.6	5.3	6.9
LINCOLN	19.2	6.4	7.8	13.9	5.8	6.4
MCPHERSON	23.2	6.0	8.1	18.0	4.9	6.4
MARION	24.1	6.5	6.7	18.3	5.6	5.1
RICE	20.7	6.1	8.3	15.1	5.0	6.6
RUSH	16.2	7.7	10.1	11.5	6.3	8.1
RUSSELL	17.1	7.2	9.6	11.4	5.8	7.4
SALINE	22.1	5.5	5.8	17.7	4.9	4.2
SOUTH CENTRAL						
BARBER	19.2	6.6	7.7	13.9	6.2	6.2
COMANCHE	15.1	7.7	8.3	10.1	6.3	7.0
EDWARDS	15.0	6.8	9.2	10.2	5.7	7.7
HARPER	21.6	6.8	9.6	15.4	5.9	6.8
HARVEY	24.6	7.0	9.2	18.4	6.2	7.1
KINGMAN	18.8	5.8	7.4	13.5	4.9	6.5
KIOWA	15.8	7.1	9.9	10.7	5.9	7.4
PAWNEE	16.7	7.8	10.2	11.4	6.1	7.7
PRATT	17.2	6.9	10.6	12.0	5.9	9.3
RENO	20.3	5.3	7.3	15.8	5.7	8.1
SEDGWICK	22.9	5.9	7.4	17.4	6.2	7.5
STAFFORD	15.6	5.0	8.4	11.3	5.3	8.3
SUMNER	23.7	6.9	9.4	17.3	6.3	6.7

TABLE 18. FREQUENCY DISTRIBUTION OF GRAIN SORGHUM YIELD PER ACRE HARVESTED AND AVERAGE YIELD, 1937-1959.

BUSHELS PER ACRE	0 TO 5.9	6.0 TO 7.9	8.0 TO 9.9	10.0 TO 11.9	12.0 TO 13.9	14.0 TO 15.9	16.0 TO 17.9	18.0 TO 19.9	20.0 TO 21.9	22.0 TO 23.9	24.0 TO 25.9	26.0 OR OVER	AVERAGE YIELD BUSHELS
NORTHWEST													
CHEYENNE		3	3	3	2	1	4	3	1	1		2	14.7
DECATUR	3	2	2	1	4		3		2	2	3	1	15.5
GRAHAM	5	1		4	3	3	2			1	3	1	13.7
NORTON	2	4		5	1	2	1	1	2	4	1		14.1
RAWLINS	2	3	1	3	3	1	3	2	1	2	1	1	14.8
SHERIDAN	2	2	2	3	2	2	4	1	1			4	15.7
SHERMAN	2	2	5	2	4	2		1	2	1	1	1	13.3
THOMAS	2	3	2	2	2	2	2	2	1	2		3	15.6
WEST CENTRAL													
GOVE	3	3		3	3	3	1		1			6	16.4
GREELEY	4	2	3	4	2	1	2	1	2			2	13.0
LANE	3	1	1	3	1	3	2		2		1	6	16.9
LOGAN	2	2	2	5		4	2	3		1		2	14.2
NESS	3	1	2	2	4	1	1		2	2	1	4	16.0
SCOTT	3		2	1	3	1	1	1	2		1	8	20.1
TREGO	4	2	1	4	1	1	3	1		1	2	3	15.0
WALLACE	3	3	3	1	4	4		1	2			2	13.3
WICHITA	3	2	2	3	2		2	2	1		2	4	17.0
SOUTHWEST													
CLARK	4	2	2	2	3	3		1	3	3			13.3
FINNEY	1	1	1		2	5	2	1	1		1	8	21.0
FORD	2	2	1	2	4	1		2	1	3	3	2	16.4
GRANT	2	1		2	3	4	2	1	2	1	2	3	17.7
GRAY	2	1	2	3	5	1		1	2	1	1	4	16.1
HAMILTON	2	2	4	1	4		1	1	4	1		3	15.1
HASKELL	2	2	3		2	4	1		2	4		3	18.5
HODGEMAN	2	1	2	2	3	4			2		3	4	16.6
KEARNEY	1	1	2	2	4	2		3		1	1	6	18.6
MEADE	2	3	2	3	2	1	2	1	2	2		3	15.1
MORTON	3		3	3	2	3	4	2		1	2		14.1
SEWARD	2	2	2	2	3	3	2	2	1	2		2	15.1
STANTON	3			3	6	2	1	3			2	3	17.0
STEVENS	3	1		3		6	3	2	1	2		2	15.2

TABLE 18. CONT.

BUSHELS PER ACRE	0 TO 5.9	6.0 TO 7.9	8.0 TO 9.9	10.0 TO 11.9	12.0 TO 13.9	14.0 TO 15.9	16.0 TO 17.9	18.0 TO 19.9	20.0 TO 21.9	22.0 TO 23.9	24.0 TO 25.9	26.0 OR OVER	AVERAGE YIELD BUSHELS
NORTH CENTRAL													
CLAY	2	1		1	2	4	2	3		1	1	6	18.5
CLOUD	1		1	3	2	4	3		2	2	3	2	18.0
JEWELL	1	1	2	2	2	6	1	1	2	1	2	2	16.5
MITCHELL		1	3	1	4	1	6	1		1	1	4	17.4
OSBORNE	2		3	3	4		2	2	1	3	1	2	16.2
OTTAWA	1	2	1	2	3	4	2	2	1	1	2	2	16.1
PHILLIPS	3	2	1	1	4	1	2	2	4	2		1	15.0
REPUBLIC		3	1	1		5	3	1	2	3	1	3	18.4
ROOKS	3	2	2	1	3	4	2	2		2	1	1	14.1
SMITH	1	4	1	2	2	4	1	2	1	2	2	1	15.4
WASHINGTON	1	1	2		1	2	4	1	1	2	2	6	20.8
CENTRAL													
BARTON		1	2	3	3	1	1	3	1	2	2	4	18.5
DICKINSON		3	1	1	4		5	2	1	2		4	17.6
ELLIS	3	1	3	2	2	1	2	1	1		4	3	16.4
ELLSWORTH	1	1	3	1	3	1	3	2		2	2	4	17.9
LINCOLN		2	2	3	2	1	2	4	1	1	1	4	17.4
MCPHERSON		1	1		3	3	3	2	1		2	7	20.5
MARION	2		1		3	2	3	3	2	3		4	18.6
RICE		2	1	3	2		2	2	3	2	1	5	19.1
RUSH	1	1	1	4	1	5		1	1	2	2	4	17.8
RUSSELL	3	2	2	2	1	4	1	1	1	1	1	4	15.9
SALINE	2	1	1	3		3	2	2	2	1	1	5	18.0
SOUTH CENTRAL													
BARBER	1	3		4	5	3	1	2		1	2	1	14.5
COMANCHE	2	3	2	4	2	4	2	2	1	1			12.7
EDWARDS		3	1	1	6	2	3	1	1	2	2	1	15.9
HARPER	2		3	4	2	2	3	1	1	2		3	15.6
HARVEY	2				1	5	3	1	3	5		3	19.7
KINGMAN	1	1	1	4	2	5	3		2	2	1	1	15.3
KIOWA	1	3	2	4	1	3		3	1		2	3	15.3
PAWNEE		1	2	1	3	2	2	4		1	2	5	18.5
PRATT		2	3	1	4	2	1	4	2	1	2	1	16.0
RENO		1	1	1	1	4	2	3	4	1		5	19.4
SEDGWICK	1	2		2		5	3	2	2	2		4	18.7
STAFFORD		1	2	3	1	4	2	3	2	1	2	2	17.5
SUMNER	2			4	2	4	3	3	1	1		3	17.1

TABLE 18. CONCL.

BUSHELS PER ACRE	0 TO 5.9	6.0 TO 7.9	8.0 TO 9.9	10.0 TO 11.9	12.0 TO 13.9	14.0 TO 15.9	16.0 TO 17.9	18.0 TO 19.9	20.0 TO 21.9	22.0 TO 23.9	24.0 TO 25.9	26.0 OR OVER	AVERAGE YIELD BUSHELS
NORTHEAST													
ATCHISON							3	3		5	5	7	24.5
BROWN			1				2	2	5	3	2	8	25.4
DONIPHAN							2	1	5	4	2	9	26.6
JACKSON					2	2	1	5	4	4	1	4	21.9
JEFFERSON					1	2	1	3	6	3	2	5	22.9
LEAVENWORTH						1	5	2	2	3	1	9	25.3
MARSHALL		1		2	1	2	2	5		1	1	8	22.2
NEMAHA			1		2	4		2	2	2	2	8	22.8
POTTAWATOMIE					3	2	2	3	4	3	1	5	22.3
RILEY					1		3	1	4	4	3	7	23.7
WYANDOTTE					2	1	3			4	3	10	25.7
EAST CENTRAL													
ANDERSON				1	3		3	5	4	1	2	4	21.8
CHASE			1		2	2	5		2	3	5	3	21.8
COFFEY			1		4	2	5	3	4	1	1	2	19.1
DOUGLAS				1	2		2	1	6	2	1	8	24.4
FRANKLIN					2	2	3	3	4	2	3	4	22.6
GEARY		1		1	4	1	2	5	3		1	5	20.3
JOHNSON					2	2	2	2	1	3	2	9	25.2
LINN			1	1	3	1	3	2	3	3	1	5	21.0
LYON				1	4	3		5	3	3	1	3	20.0
MIAMI					3	3	4	2	2	4	1	4	21.1
MORRIS	1	1	1	2	2	1	4	3	1	4		3	18.3
OSAGE				1	1	1	1	4	2	8	2	3	22.7
SHAWNEE				1	3	1	1	3	2	4	3	5	22.6
WABAUNSEE				1	1	1	1	4	2	6	2	5	23.1
SOUTHEAST													
ALLEN			1		2	3	5	4	3	3		2	19.6
BOURBON		1			1	8	1	3	3	4		2	19.5
BUTLER	1	2	1		1	1	3	3	3		4	4	20.3
CHAUTAUQUA		1	1	3	6	3	4	1	1	1		2	15.8
CHEROKEE	1		2	1	5	3	4	3	1	1		2	17.1
COWLEY	1	2		3	1	4	3	3	2	1		3	17.4
CRAWFORD			1	1	2	6	4	3	1	1	2	2	18.6
ELK		2		3	4	5	4	1	1	1		2	16.2
GREENWOOD		3		1	2	5	2	4	1	3		2	17.6
LABETTE	1			4	3	4	2	6		1		2	17.0
MONTGOMERY				5	1	6	3	3	1	1	1	2	18.0
NEOSHO		1		1	2	6	5	4	2			2	18.1
WILSON	1			2	6	4		4	3	1		2	17.3
WOODSON		2		3	3	5	1	3	3	1		2	17.4

TABLE 19. AVERAGE YEAR TO-YEAR CHANGE OF CROP YIELDS PER ACRE HARVESTED, 1937-1959.

COUNTY	GRAIN SORGHUM, BUSHELS	SOYBEANS, BUSHELS	ALFALFA, TONS
NORTHWEST			
CHEYENNE	5.2	1.0	.24
DECATUR	5.5	1.8	.25
GRAHAM	4.9	.9	.21
NORTON	6.1	.9	.33
RAWLINS	5.4	1.0	.35
SHERIDAN	6.5	1.0	.24
SHERMAN	5.3	1.4	.21
THOMAS	6.4	.6	.23
WEST CENTRAL			
GOVE	6.6	1.6	.30
GREELEY	5.5	1.5	.61
LANE	6.4	1.6	.36
LOGAN	6.2	1.7	.23
NESS	5.1	1.9	.47
SCOTT	6.8	2.9	.41
TREGO	6.3	1.6	.39
WALLACE	6.8	.0	.32
WICHITA	9.4	.7	.38
SOUTHWEST			
CLARK	5.2	1.1	.49
FINNEY	6.8	2.2	.26
FORD	5.4	2.4	.37
GRANT	5.3	2.5	.52
GRAY	5.3	1.7	.38
HAMILTON	7.2	1.6	.37
HASKELL	7.4	.6	.49
HODGEMAN	5.5	.5	.45
KEARNEY	6.9	1.0	.29
MEADE	6.1	.7	.31
MORTON	4.5	2.7	.32
SEWARD	5.4	1.4	.26
STANTON	6.8	.9	.26
STEVENS	5.1	.9	.29
NORTH CENTRAL			
CLAY	6.6	4.8	.39
CLOUD	6.5	4.7	.40
JEWELL	6.5	4.1	.45
MITCHELL	6.3	3.7	.36
OSBORNE	6.1	4.2	.38
OTTAWA	5.8	4.4	.28
PHILLIPS	5.6	3.6	.37
REPUBLIC	7.4	6.4	.37
ROOKS	5.4	2.4	.30
SMITH	6.4	3.2	.45
WASHINGTON	8.5	5.3	.40
CENTRAL			
BARTON	6.1	5.0	.40
DICKINSON	6.0	4.1	.45
ELLIS	7.5	1.4	.50
ELLSWORTH	6.2	5.2	.40
LINCOLN	6.6	4.0	.31
MCPHERSON	6.6	4.5	.45
MARION	5.7	3.2	.36
RICE	5.3	4.4	.35
RUSH	6.5	2.0	.34
RUSSELL	6.0	3.8	.32
SALINE	6.2	4.3	.38

TABLE 19. CONCL.

COUNTY	GRAIN SORGHUM, BUSHELS	SOYBEANS, BUSHELS	ALFALFA, TONS
SOUTH CENTRAL			
BARBER	5.8	3.6	.38
COMANCHE	4.6	.8	.49
EDWARDS	5.9	3.3	.45
HARPER	6.3	3.1	.37
HARVEY	5.7	3.2	.29
KINGMAN	4.6	3.4	.32
KIOWA	6.2	4.0	.55
PAWNEE	5.7	4.8	.38
PRATT	4.8	2.8	.41
RENO	4.4	2.9	.31
SEDGWICK	6.1	3.4	.29
STAFFORD	5.2	3.8	.29
SUMNER	6.3	3.1	.34
NORTHEAST			
ATCHISON	4.6	3.7	.35
BROWN	7.2	4.7	.43
DONIPHAN	5.7	4.4	.29
JACKSON	4.7	3.6	.34
JEFFERSON	4.2	3.4	.25
LEAVENWORTH	5.9	3.7	.27
MARSHALL	7.6	5.3	.38
NEMAHA	7.7	4.3	.43
POTTAWATOMIE	6.1	3.4	.33
RILEY	5.4	4.2	.31
WYANDOTTE	6.0	3.2	.35
EAST CENTRAL			
ANDERSON	5.2	3.3	.35
CHASE	5.3	3.8	.35
COFFEY	4.5	3.4	.29
DOUGLAS	7.2	4.0	.36
FRANKLIN	5.0	3.3	.34
GEARY	5.8	4.8	.40
JOHNSON	6.3	4.3	.32
LINN	6.4	4.0	.32
LYON	4.9	3.9	.36
MIAMI	4.5	3.8	.31
MORRIS	5.8	4.5	.37
OSAGE	4.4	4.2	.36
SHAWNEE	5.1	3.6	.36
WABAUNSEE	5.3	4.1	.48
SOUTHEAST			
ALLEN	4.4	2.8	.50
BOURBON	4.9	3.4	.32
BUTLER	6.0	3.3	.35
CHAUTAUQUA	5.0	2.8	.39
CHEROKEE	4.4	3.5	.38
COWLEY	6.5	3.1	.36
CRAWFORD	5.2	3.9	.40
ELK	4.5	3.1	.29
GREENWOOD	4.8	3.6	.31
LABETTE	5.4	3.0	.40
MONTGOMERY	5.4	3.5	.40
NEOSHO	4.2	3.0	.45
WILSON	5.0	2.9	.39
WOODSON	5.1	3.3	.32

TABLE 20. FREQUENCY DISTRIBUTION OF SOYBEAN YIELD PER ACRE HARVESTED AND AVERAGE YIELD, 1937-1959.

BUSHELS PER ACRE	0 TO 3.9	4.0 TO 5.9	6.0 TO 7.9	8.0 TO 9.9	10.0 TO 11.9	12.0 TO 13.9	14.0 TO 15.9	16.0 TO 17.9	18.0 TO 19.9	20.0 TO 21.9	22.0 TO 23.9	24.0 OR OVER	AVERAGE YIELD BUSHELS
NORTHWEST													
CHEYENNE	21		1		1								.8
DECATUR	21			1	1								.9
GRAHAM	22				1								.4
NORTON	21		1		1								.7
RAWLINS	21		1		1								.7
SHERIDAN	22				1								.5
SHERMAN	20	1			2								1.1
THOMAS	22		1										.3
WEST CENTRAL													
GOVE	21		1		1								.8
GREELEY	21		1		1								.7
LANE	20		2		1								1.0
LOGAN	20	1		1	1								1.0
NESS	19	1	1		2								1.4
SCOTT	13		1	3	4	1	1						4.3
TREGO	20		2		1								1.0
WALLACE	23												.0
WICHITA	21		1	1									.7
SOUTHWEST													
CLARK	22					1							.5
FINNEY	19		1	2				1					1.7
FORD	18		2		2	1							2.0
GRANT	20		1	1	1								1.2
GRAY	19		3		1								1.4
HAMILTON	20		2		1								1.1
HASKELL	22		1										.3
HODGEMAN	22	1											.2
KEARNEY	21		1		1								.7
MEADE	22			1									.3
MORTON	20			2	1								1.3
SEWARD	21	1			1								.7
STANTON	22			1									.4
STEVENS	22				1								.4

TABLE 20. CONT.

BUSHELS PER ACRE	0 TO 3.9	4.0 TO 5.9	6.0 TO 7.9	8.0 TO 9.9	10.0 TO 11.9	12.0 TO 13.9	14.0 TO 15.9	16.0 TO 17.9	18.0 TO 19.9	20.0 TO 21.9	22.0 TO 23.9	24.0 OR OVER	AVERAGE YIELD BUSHELS
NORTH CENTRAL													
CLAY	2	3	5	2	4	2	2	1		1	1		9.6
CLOUD		7	1	2	4	4	2	1	1	1			10.1
JEWELL	5	6	1	1	5	1	2	1	1				7.6
MITCHELL	12	3	2	2	1	1	1		1				4.6
OSBORNE	12	1	2	3	4				1				4.5
OTTAWA	3	1	2	2	6	4	1	2		2			10.2
PHILLIPS	16	2	1	1	1		1	1					3.0
REPUBLIC	7	2	2	3	4	2	1		1	1			7.4
ROOKS	18	1	1	2		1							1.8
SMITH	18	2		2				1					2.0
WASHINGTON	2	1	5	3	6	2	2		1	1			9.7
CENTRAL													
BARTON	6	2	4	2	6			2		1			7.5
DICKINSON	1	3	5	3	4	3	1	2		1			9.7
ELLIS	20		1	1		1							1.2
ELLSWORTH	9	2	1	4	2	2	1			2			6.6
LINCOLN	12	4	1	3			2	1					4.1
MCPHERSON	2	3	5	4	1	3	2	1		1	1		9.6
MARION	1	4	4	2	4	3	2	1		2			10.4
RICE	4	3	4	4	4	1	2			1			8.2
RUSH	17	1	3	1		1							2.0
RUSSELL	14	2	2	3	1		1						3.2
SALINE	3	2	2	3	7	2	2	1			1		9.8
SOUTH CENTRAL													
BARBER	5	4	4	3	5		1	1					6.7
COMANCHE	21		1	1									.7
EDWARDS	15	4		1	2					1			3.0
HARPER	1	4	5	4	4	1	2	1	1				9.1
HARVEY		3	6	4	3	3	1	2	1				9.6
KINGMAN	2	2	6	5	5	1		1	1				8.4
KIOWA	14	3	1	1	4								3.2
PAWNEE	8	3	1	3	4	1		1			1	1	7.3
PRATT	3	3	4	3	7			1	2				8.5
RENO	1	1	5	7	5	1		1	1		1		9.9
SEDGWICK	2	3	4	5	2	3		3			1		9.7
STAFFORD	4	3	5	2	7	1				1			7.4
SUMNER	2	2	5	4	4	3	1	1		1			9.5

TABLE 20. CONCL.

BUSHELS PER ACRE	0 TO 3.9	4.0 TO 5.9	6.0 TO 7.9	8.0 TO 9.9	10.0 TO 11.9	12.0 TO 13.9	14.0 TO 15.9	16.0 TO 17.9	18.0 TO 19.9	20.0 TO 21.9	22.0 TO 23.9	24.0 OR OVER	AVERAGE YIELD BUSHELS
NORTHEAST													
ATCHISON			2	1	4	4	6	2	2	1	1		13.9
BROWN			2	1	3	4	5	2	3	1		2	14.8
DONIPHAN			1	1	3	6	4	3	1	1	2	1	15.1
JACKSON			2	7	3	5	2	2	1		1		12.1
JEFFERSON			1	4	4	6	3	2	2	1			12.9
LEAVENWORTH			1	3	2	5	6	2	2	1		1	14.1
MARSHALL	2	2	1	2	4	4	5	1	1		1		11.3
NEMAHA		1	1	1	6	5	3	4	1		1		13.1
POTTAWATOMIE			3	4	4	6	2	2		1	1		12.1
RILEY	1	1	2	2	4	5	7			1			11.6
WYANDOTTE				3	2	4	8	3			2	1	14.5
EAST CENTRAL													
ANDERSON			2	5	3	5	3	2	1	1		1	13.1
CHASE			4	5	1	6	3	1		2		1	12.5
COFFEY		1	1	5	3	6	2	2	1		1	1	12.9
DOUGLAS				5	1	4	5	2	3	1		2	14.8
FRANKLIN			3	2	5	3	4	3	1		2		13.4
GEARY			5	2	3	5	4		2		2		12.5
JOHNSON				5		7	4	3	2		1	1	14.3
LINN			3	5	3	5	4		2		1		12.2
LYON		1	2	4	4	5	3		3			1	12.5
MIAMI				7	1	6	6	1		1		1	13.0
MORRIS			4	2	5	4	4	1		1	1	1	12.7
OSAGE			2	4	5	3	3	3	1			2	13.2
SHAWNEE			1	3	3	7	1	3	2	3			13.8
WABAUNSEE			3	3	4	5	4	2	1			1	12.9
SOUTHEAST													
ALLEN		1	4	6	5	1	3		1	1	1		11.3
BOURBON			2	6	4	5	3	1		1	1		12.1
BUTLER	1	2	3	6	3	4	1		2	1			10.6
CHAUTAUQUA		2	5	6	5	1	2	1			1		10.1
CHEROKEE	1	1	2	7	4	3	2	1	1	1			10.9
COWLEY		3	4	6	3	3	1		1	1	1		10.8
CRAWFORD	1	1	4	5	3	4	2	1	1		1		11.1
ELK			5	5	6	2	1	2		2			11.2
GREENWOOD			4	5	3	6	1	1	1	1		1	12.0
LABETTE			4	8	4	3	1	1	1	1			10.6
MONTGOMERY			6	6	5	1	2		1	1	1		10.9
NEOSHO		1	4	8	3	2	2	1		1	1		10.8
WILSON		1	4	6	4	3	2	1	1			1	11.2
WOODSON	1	1	2	7	5	3	1		1	2			10.9

TABLE 21. AVERAGE CORN YIELD WITH STANDARD DEVIATION AND AVERAGE YEAR-TO-YEAR CHANGE, 1937-1959.

COUNTY	PER ACRE HARVESTED			PER ACRE SEEDED		
	AVERAGE YIELD, BUSHELS	STANDARD DEVIATION	YEAR-TO-YEAR CHANGE, BUSHELS	AVERAGE YIELD, BUSHELS	STANDARD DEVIATION	YEAR-TO-YEAR CHANGE, BUSHELS
NORTHWEST						
CHEYENNE	17.7	9.6	6.3	16.3	9.6	6.1
DECATUR	18.3	8.8	7.2	16.7	9.1	7.4
GRAHAM	14.2	9.1	6.6	13.3	9.5	6.8
NORTON	15.7	8.5	6.5	14.6	9.1	6.9
RAWLINS	17.5	7.9	6.8	16.3	8.5	7.1
SHERIDAN	16.1	11.0	7.5	14.9	11.4	7.9
SHERMAN	16.5	9.2	5.6	15.2	9.6	6.1
THOMAS	17.3	10.7	5.8	16.2	11.2	6.0
WEST CENTRAL						
GOVE	15.8	10.8	6.2	14.9	11.1	6.6
GREELEY	17.1	13.5	6.9	16.1	13.6	6.8
LANE	18.3	13.9	7.1	17.3	14.0	7.5
LOGAN	16.1	12.0	6.7	14.8	11.9	7.2
NESS	16.9	12.8	6.9	15.9	13.2	7.4
SCOTT	25.9	17.9	6.5	24.8	18.0	5.9
TREGO	14.2	9.2	5.8	13.1	9.4	6.2
WALLACE	15.6	10.2	5.8	13.8	10.7	6.6
WICHITA	22.2	17.4	6.0	21.4	17.5	5.9
SOUTHWEST						
CLARK	13.9	8.8	4.9	13.2	9.0	4.9
FINNEY	20.0	14.2	6.2	19.2	14.5	6.2
FORD	16.0	10.1	7.0	14.7	10.4	7.6
GRANT	18.1	17.5	6.7	17.4	17.8	6.9
GRAY	16.8	14.2	6.4	15.4	14.4	6.7
HAMILTON	17.5	12.1	6.6	16.7	12.4	6.7
HASKELL	18.1	16.9	7.6	16.5	16.9	7.3
HODGEMAN	15.3	10.7	6.8	14.5	11.1	7.4
KEARNEY	19.0	12.7	6.3	17.6	13.2	6.6
MEADE	14.5	10.6	5.1	13.6	11.1	5.7
MORTON	15.6	12.0	6.7	14.5	12.1	6.8
SEWARD	15.9	14.5	7.3	14.9	15.1	7.7
STANTON	16.1	15.7	8.0	15.1	15.6	8.4
STEVENS	16.5	13.9	7.0	15.6	14.3	7.4
NORTH CENTRAL						
CLAY	23.3	10.9	9.3	22.0	11.0	9.8
CLOUD	21.8	11.4	8.8	20.7	11.6	9.4
JEWELL	18.1	11.0	9.1	17.1	11.3	9.6
MITCHELL	19.6	11.4	9.7	18.5	11.4	9.7
OSBORNE	18.1	10.5	8.0	16.8	10.5	7.9
OTTAWA	20.4	9.8	7.7	19.3	9.9	7.8
PHILLIPS	15.5	8.9	6.5	14.6	9.4	6.8
REPUBLIC	20.0	9.3	8.6	19.2	9.4	8.8
ROOKS	15.5	9.1	6.7	14.4	9.4	6.7
SMITH	16.8	9.6	7.6	15.9	10.1	8.0
WASHINGTON	23.3	10.3	10.6	22.3	10.5	10.7
CENTRAL						
BARTON	17.1	8.4	7.3	15.9	8.3	6.8
DICKINSON	19.8	9.6	7.3	18.6	9.7	7.6
ELLIS	15.2	9.2	7.6	13.9	9.2	7.8
ELLSWORTH	18.5	9.9	7.0	17.5	10.1	7.3
LINCOLN	18.0	10.4	8.4	17.0	10.6	8.8
MCPHERSON	20.9	10.4	8.2	20.2	10.3	8.1
MARION	18.8	8.2	6.9	18.3	8.1	6.9
RICE	18.1	8.7	6.8	17.1	8.6	6.5
RUSH	15.9	9.6	7.5	15.2	10.0	7.7
RUSSELL	16.5	10.1	7.4	15.6	10.4	7.8
SALINE	21.1	11.5	8.5	20.0	11.5	8.6

TABLE 21. CONCL.

COUNTY	PER ACRE HARVESTED			PER ACRE SEEDED		
	AVERAGE YIELD, BUSHELS	STANDARD DEVIATION	YEAR-TO-YEAR CHANGE, BUSHELS	AVERAGE YIELD, BUSHELS	STANDARD DEVIATION	YEAR-TO-YEAR CHANGE, BUSHELS
SOUTH CENTRAL						
BARBER	15.6	7.8	6.3	14.8	7.9	6.5
COMANCHE	13.7	7.1	6.1	13.0	7.6	6.6
EDWARDS	14.2	7.7	6.2	13.1	7.8	6.0
HARPER	16.1	7.3	6.9	15.3	7.8	7.3
HARVEY	20.6	8.7	6.0	19.9	8.5	5.8
KINGMAN	15.7	6.8	5.6	15.0	6.8	5.7
KIOWA	14.1	8.1	6.2	13.3	8.4	6.7
PAWNEE	16.2	8.9	7.4	15.2	9.1	7.8
PRATT	14.2	7.2	5.2	13.6	7.3	5.5
RENO	19.3	7.8	5.4	18.2	7.6	5.5
SEDGWICK	20.7	9.3	6.2	19.8	9.1	6.1
STAFFORD	16.3	6.1	5.3	15.5	6.2	5.7
SUMNER	21.0	8.9	6.9	19.9	9.2	7.2
NORTHEAST						
ATCHISON	31.0	7.8	8.7	30.3	7.7	8.9
BROWN	34.1	10.8	11.5	33.6	10.9	11.9
DONIPHAN	36.8	8.9	8.0	36.1	9.1	8.5
JACKSON	26.0	7.9	8.1	25.4	8.0	8.6
JEFFERSON	28.4	7.8	7.3	27.6	7.6	7.5
LEAVENWORTH	33.1	8.4	7.6	31.8	8.2	8.2
MARSHALL	24.7	11.0	12.0	23.9	11.1	12.4
NEMAHA	27.8	10.5	12.6	27.2	10.6	13.0
POTTAWATOMIE	28.3	9.9	11.3	27.2	10.1	12.0
RILEY	27.5	9.9	9.4	26.5	10.0	9.8
WYANDOTTE	33.8	8.9	8.8	33.1	8.8	9.1
EAST CENTRAL						
ANDERSON	26.8	10.4	7.8	26.0	10.6	8.4
CHASE	26.6	10.7	7.7	25.6	10.9	8.0
COFFEY	25.5	10.0	8.9	24.6	10.1	8.9
DOUGLAS	31.0	11.0	8.0	30.1	11.1	8.9
FRANKLIN	27.5	10.2	8.4	26.5	10.2	8.9
GEARY	24.2	11.7	8.5	23.0	11.4	8.4
JOHNSON	30.3	10.6	8.3	29.8	10.6	8.5
LINN	26.2	9.5	8.0	25.3	9.4	8.6
LYON	23.2	8.7	7.3	22.4	8.7	7.6
MIAMI	27.0	9.6	9.2	26.2	9.5	9.6
MORRIS	22.5	10.6	8.4	21.8	10.6	8.4
OSAGE	25.8	9.8	7.5	25.3	9.8	7.8
SHAWNEE	30.5	11.3	6.7	29.4	11.5	7.5
WABAUNSEE	25.7	9.8	8.9	24.9	9.7	9.1
SOUTHEAST						
ALLEN	25.4	10.3	8.3	24.5	10.3	8.9
BOURBON	25.1	8.8	7.6	24.4	8.9	7.9
BUTLER	24.6	10.5	7.1	23.9	10.4	7.3
CHAUTAUQUA	22.0	8.4	4.9	21.0	8.7	5.2
CHEROKEE	20.3	8.5	7.4	19.4	8.4	7.6
COWLEY	22.6	10.3	6.3	21.9	10.4	6.3
CRAWFORD	22.4	8.1	7.1	21.8	8.2	7.3
ELK	22.2	8.9	7.1	21.5	8.7	7.2
GREENWOOD	26.1	9.7	7.2	25.4	9.7	7.3
LABETTE	21.6	7.6	6.9	20.8	7.7	7.2
MONTGOMERY	25.0	8.6	6.9	23.7	8.7	7.4
NEOSHO	23.1	8.6	7.6	21.8	8.3	7.7
WILSON	24.9	9.1	7.7	23.6	8.9	8.1
WOODSON	23.7	8.9	7.6	22.7	9.2	8.4

TABLE 22. FREQUENCY DISTRIBUTION OF CORN YIELD PER ACRE HARVESTED AND AVERAGE YIELD, 1937-1959.

BUSHELS PER ACRE	0 TO 7.9	8.0 TO 11.9	12.0 TO 15.9	16.0 TO 19.9	20.0 TO 23.9	24.0 TO 27.9	28.0 TO 31.9	32.0 TO 35.9	36.0 TO 39.9	40.0 TO 43.9	44.0 TO 47.9	48.0 OR OVER	AVERAGE YIELD BUSHELS
NORTHWEST													
CHEYENNE	5	2	5	1	5	3			1	1			17.7
DECATUR	4	2	2	5	5	1	3	1					18.3
GRAHAM	7	2	6	2	2	1	3						14.2
NORTON	6		4	7	1	3	2						15.7
RAWLINS	5		3	6	5	2		2					17.5
SHERIDAN	5	4	4	3	3	1	1		1		1		16.1
SHERMAN	4	3	5	3	4	2		1	1				16.5
THOMAS	4	2	6	4	3	1	1			1	1		17.3
WEST CENTRAL													
GOVE	5	3	5	3	1	4			1	1			15.8
GREELEY	6	4	3	2	2	3		1			1	1	17.1
LANE	6	4	1	3	2	2	3				1	1	18.3
LOGAN	5	3	6	3	3	1					1	1	16.1
NESS	7	3	3	1	1	5	1				2		16.9
SCOTT	4	1	1	3	2	2	5	1		1		3	25.9
TREGO	7	3	3	5		3	1	1					14.2
WALLACE	5	5	4	3	1	2	1	1		1			15.6
WICHITA	4	2	4	1	3	5				1		3	22.2
SOUTHWEST													
CLARK	5	7	3	3	2	1	1	1					13.9
FINNEY	4	2	4	4	1	3	2			1		2	20.0
FORD	5	4	4	2	3	2	1	2					16.0
GRANT	4	6	5	1	3	1				1		2	18.1
GRAY	4	5	5	4	1	1	1					2	16.8
HAMILTON	5	4	3	2	2	4		1		1	1		17.5
HASKELL	5	5	4	2	2	1	1	1				2	18.1
HODGEMAN	6	5	2	1	3	3	1	2					15.3
KEARNEY	4	1	6	4	3	1	1	1				2	19.0
MEADE	5	7	3	2	2	2				2			14.5
MORTON	4	7	4	2	1	1	1	1		1	1		15.6
SEWARD	6	6	3	2	2	1		1		1		1	15.9
STANTON	6	6	2	2	3	1				2		1	16.1
STEVENS	6	3	4	3	3	1		1		1		1	16.5

TABLE 22. CONT.

BUSHELS PER ACRE	0 TO 7.9	8.0 TO 11.9	12.0 TO 15.9	16.0 TO 19.9	20.0 TO 23.9	24.0 TO 27.9	28.0 TO 31.9	32.0 TO 35.9	36.0 TO 39.9	40.0 TO 43.9	44.0 TO 47.9	48.0 OR OVER	AVERAGE YIELD BUSHELS
NORTH CENTRAL													
CLAY	1	3	4	2	1	4	3	1	3		1		23.3
CLOUD	1	5	3	2	1	4	3	1	2			1	21.8
JEWELL	6	2	3	2	3	2	3	1			1		18.1
MITCHELL	5	3	2	2	1	3	4	2			1		19.6
OSBORNE	4	3	4	3	2	2	2	2		1			18.1
OTTAWA	3	3	2	3	3	4	2	1	1	1			20.4
PHILLIPS	6	3	2	5	4	1	1	1					15.5
REPUBLIC	2	4	2	4	3	5	1	1			1		20.0
ROOKS	7	1	3	6	2	1	3						15.5
SMITH	5	4	2	4	3	2	1	1	1				16.8
WASHINGTON	2	3		3	2	7		4	1		1		23.3
CENTRAL													
BARTON	3	3	5	3	4	2	3						17.1
DICKINSON	3	2	5	2	2	4	2	2	1				19.8
ELLIS	6	4	2	3	2	4	2						15.2
ELLSWORTH	5	3	1	4	2	2	5	1					18.5
LINCOLN	7	1	1	5	3	1	2	2	1				18.0
MCPHERSON	1	5	5		4	2	2	1	3				20.9
MARION	2	5	2	3	4	3	3	1					18.8
RICE	3	4	3	4	3	2	3	1					18.1
RUSH	6	4	3	2	1	5	1	1					15.9
RUSSELL	6	3	4	2	2		5	1					16.5
SALINE	5	1	3	2	3	1	3	2	1	2			21.1
SOUTH CENTRAL													
BARBER	4	3	6	3	2	4		1					15.6
COMANCHE	5	6	3	5	2	1	1						13.7
EDWARDS	6	5	2	3	3	4							14.2
HARPER	5	1	5	5	3	3	1						16.1
HARVEY		5	4	2	1	5	3	2	1				20.6
KINGMAN	4	4	4	3	6	1	1						15.7
KIOWA	6	5	3	4	1	2	2						14.1
PAWNEE	3	6	4	2	2	4	1	1					16.2
PRATT	6	5	2	3	3	4							14.2
RENO	1	4	4	1	7	3	2		1				19.3
SEDGWICK	1	3	5	2	4	3	2	1	1	1			20.7
STAFFORD	3	3	5	3	5	4							16.3
SUMNER	2	2	4	1	6	3	1	3	1				21.0

TABLE 22. CONCL.

BUSHELS PER ACRE	0 TO 7.9	8.0 TO 11.9	12.0 TO 15.9	16.0 TO 19.9	20.0 TO 23.9	24.0 TO 27.9	28.0 TO 31.9	32.0 TO 35.9	36.0 TO 39.9	40.0 TO 43.9	44.0 TO 47.9	48.0 OR OVER	AVERAGE YIELD BUSHELS
NORTHEAST													
ATCHISON			1		5	1	2	9	3	2			31.0
BROWN			2		2	3	1	4	5	1	3	2	34.1
DONIPHAN				1	1	2	2	4	6	3	2	2	36.8
JACKSON		2	2	1	2	6	5	2	3				26.0
JEFFERSON		1		2	4	2	7	5		1	1		28.4
LEAVENWORTH				1	3	3	2	6	3	2	2	1	33.1
MARSHALL	1	3	1	2	3	4	3	2	1	2	1		24.7
NEMAHA		1	3	2	2	4	3	3	2	2		1	27.8
POTTAWATOMIE		1	2	2	1	5	4	2	3	2	1		28.3
RILEY	1		2	2	3	3	6	1	1	3	1		27.5
WYANDOTTE				2	2		4	7	2	4	1	1	33.8
EAST CENTRAL													
ANDERSON	1	1		2	7	3	2	3	2		1	1	26.8
CHASE		1	3	3	2	3	5	2	1	1	1	1	26.6
COFFEY	1	1		3	6	4	4	2			1	1	25.5
DOUGLAS		1		3	2	2	5	1	4	3	1	1	31.0
FRANKLIN		2	1	2	5	2	2	3	5			1	27.5
GEARY	1	5		4	2	2	2	2	2	3			24.2
JOHNSON		1	1	2	5		1	4	5	3		1	30.3
LINN		2		6	3	2	2	5	1		2		26.2
LYON	2		2	5	3	5	3	1	1	1			23.2
MIAMI		1	3	2	3	2	5	3	2	1	1		27.0
MORRIS	1	4	4		2	4	4	2		2			22.5
OSAGE		2	1	4	4		5	4	2			1	25.8
SHAWNEE			3		5	3	3		5	2		2	30.5
WABAUNSEE	1	2	1	3	2	6	2	1	3	2			25.7
SOUTHEAST													
ALLEN	1	1	1	3	5	3	4	2	1		1	1	25.4
BOURBON	1		2	4	5	2	4	3		1	1		25.1
BUTLER	2	1	3	1	3	4	3	3	2		1		24.6
CHAUTAUQUA	1		1	9	7	2	1			1	1		22.0
CHEROKEE	1	3	3	5	5	4			1	1			20.3
COWLEY	2	2	3	2	3	5	2	1	1	1	1		22.6
CRAWFORD	1	1	2	3	7	5	1	1	1	1			22.4
ELK	1	1	2	7	4	4	1	1		1	1		22.2
GREENWOOD	1		1	3	5	4	5	1	1		1	1	26.1
LABETTE	1		4	4	6	6			1	1			21.6
MONTGOMERY		1	1	2	8	4	5				1	1	25.0
NEOSHO	1	1		8	3	5	3			1	1		23.1
WILSON		1	1	5	5	5	3		1	1		1	24.9
WOODSON	1	1	1	4	6	5	1	1	2	1			23.7

TABLE 23. AVERAGE OATS YIELD WITH STANDARD DEVIATION AND AVERAGE YEAR-TO-YEAR CHANGE, 1937-1959.

COUNTY	PER ACRE HARVESTED			PER ACRE SEEDED		
	AVERAGE YIELD, BUSHELS	STANDARD DEVIATION	YEAR-TO-YEAR CHANGE, BUSHELS	AVERAGE YIELD, BUSHELS	STANDARD DEVIATION	YEAR-TO-YEAR CHANGE, BUSHELS
NORTHWEST						
CHEYENNE	18.5	7.3	6.9	13.7	7.5	8.4
DECATUR	19.5	8.1	8.6	15.5	7.7	8.8
GRAHAM	17.5	7.4	8.4	13.5	7.3	8.9
NORTON	18.9	8.4	9.3	14.1	7.4	9.3
RAWLINS	20.5	8.3	8.6	15.5	8.1	9.5
SHERIDAN	17.5	8.1	9.6	13.7	8.0	10.0
SHERMAN	17.9	9.2	8.4	13.6	9.0	8.3
THOMAS	18.3	8.9	8.0	13.8	8.3	7.0
WEST CENTRAL						
GOVE	15.9	7.7	9.2	11.4	7.9	8.8
GREELEY	14.0	8.8	9.2	11.2	9.3	10.3
LANE	16.5	8.8	9.9	12.3	8.9	9.9
LOGAN	15.0	8.0	7.9	11.3	7.4	8.2
NESS	16.4	7.8	8.7	12.3	8.4	9.7
SCOTT	16.3	8.5	9.4	12.6	8.9	10.4
TREGO	16.5	6.9	8.6	12.2	7.2	9.1
WALLACE	14.7	7.8	8.3	10.8	7.8	9.0
WICHITA	14.8	8.0	7.6	11.0	8.0	8.4
SOUTHWEST						
CLARK	16.1	7.5	9.0	12.1	8.6	10.5
FINNEY	16.8	9.4	11.2	12.1	9.7	11.3
FORD	16.8	8.0	9.1	12.2	8.9	10.6
GRANT	13.3	8.4	10.1	9.8	7.8	9.2
GRAY	15.1	7.7	8.9	10.7	8.2	9.6
HAMILTON	13.4	8.9	10.2	10.4	9.0	9.6
HASKELL	14.0	7.3	8.1	9.9	7.4	8.1
HODGEMAN	15.8	7.7	9.9	11.7	8.7	10.9
KEARNEY	15.2	8.3	10.3	11.7	8.9	10.5
MEADE	15.0	7.0	9.2	11.7	8.0	10.3
MORTON	12.3	8.4	8.4	8.8	8.3	7.8
SEWARD	13.3	7.2	8.7	8.8	7.9	8.5
STANTON	12.2	9.1	9.7	7.7	8.4	7.7
STEVENS	13.1	8.3	10.1	10.1	8.4	9.9
NORTH CENTRAL						
CLAY	23.5	6.5	6.9	21.0	7.3	7.5
CLOUD	20.6	6.6	6.5	17.9	7.3	7.6
JEWELL	19.4	6.5	7.2	16.3	7.5	8.1
MITCHELL	21.5	7.7	8.5	18.5	8.3	9.0
OSBORNE	19.9	7.9	8.5	16.3	8.0	8.8
OTTAWA	21.9	6.2	6.5	19.0	6.9	7.5
PHILLIPS	17.9	7.2	9.2	14.5	7.5	9.1
REPUBLIC	22.0	7.1	7.6	19.2	7.5	7.6
ROOKS	17.1	6.5	8.0	13.7	7.1	8.2
SMITH	18.6	7.0	9.1	15.3	7.4	9.5
WASHINGTON	23.0	7.4	8.3	20.6	7.7	8.5
CENTRAL						
BARTON	19.7	6.6	8.0	16.6	7.3	8.2
DICKINSON	23.9	6.6	6.9	21.1	7.7	7.8
ELLIS	16.6	7.2	8.9	13.4	7.5	9.1
ELLSWORTH	20.5	7.0	8.4	17.6	7.7	9.2
LINCOLN	21.3	8.0	9.6	18.0	8.2	9.4
MCPHERSON	23.1	6.5	7.2	20.1	7.5	8.3
MARION	21.7	5.6	6.1	19.2	6.2	6.6
RICE	21.4	6.4	7.4	17.7	7.5	8.9
RUSH	18.6	7.3	9.4	14.8	8.0	9.3
RUSSELL	19.4	7.0	7.9	15.9	7.6	8.3
SALINE	23.3	5.9	5.9	19.9	6.8	6.7

TABLE 23. CONCL.

COUNTY	PER ACRE HARVESTED			PER ACRE SEEDED		
	AVERAGE YIELD, BUSHELS	STANDARD DEVIATION	YEAR-TO-YEAR CHANGE, BUSHELS	AVERAGE YIELD, BUSHELS	STANDARD DEVIATION	YEAR-TO-YEAR CHANGE, BUSHELS
SOUTH CENTRAL						
BARBER	20.0	5.8	6.8	15.7	7.0	7.5
COMANCHE	17.5	6.7	7.8	13.6	6.9	7.5
EDWARDS	18.9	7.2	8.6	14.6	8.3	10.4
HARPER	20.3	5.3	5.3	16.5	6.6	6.8
HARVEY	23.3	6.1	7.7	20.2	7.2	9.1
KINGMAN	19.7	5.6	6.7	16.4	6.7	8.0
KIOWA	17.7	6.4	7.5	13.5	7.3	8.1
PAWNEE	19.2	7.6	10.2	15.6	8.9	11.3
PRATT	18.7	6.3	8.5	14.6	6.8	7.9
RENO	21.9	5.5	6.5	18.7	6.7	8.0
SEDGWICK	21.7	5.9	7.2	18.1	7.4	8.3
STAFFORD	19.8	5.9	7.4	16.0	7.1	8.8
SUMNER	21.7	5.4	5.8	17.7	6.7	7.2
NORTHEAST						
ATCHISON	27.5	6.0	7.1	24.8	6.4	7.5
BROWN	29.9	7.5	9.8	28.1	7.5	9.7
DONIPHAN	27.5	6.3	8.0	24.8	6.2	8.4
JACKSON	25.0	6.0	6.5	22.5	6.4	6.8
JEFFERSON	25.7	6.3	6.9	22.7	6.9	7.5
LEAVENWORTH	26.6	7.4	7.6	23.4	7.2	7.4
MARSHALL	23.5	6.2	7.3	21.1	6.4	7.7
NEMAHA	27.1	7.4	8.0	24.8	7.1	8.1
POTTAWATOMIE	26.0	6.5	6.2	23.1	6.9	6.9
RILEY	26.3	6.7	7.1	23.6	7.3	7.8
WYANDOTTE	26.1	7.1	7.8	23.2	7.2	7.8
EAST CENTRAL						
ANDERSON	26.0	7.5	6.5	23.4	7.9	7.0
CHASE	24.7	6.3	7.4	21.4	7.5	8.1
COFFEY	24.2	6.5	6.1	20.9	6.9	6.5
DOUGLAS	27.8	8.0	8.5	24.4	7.8	7.8
FRANKLIN	25.9	7.1	7.2	22.3	7.7	7.3
GEARY	25.0	7.0	7.2	21.6	7.6	7.9
JOHNSON	27.3	7.4	7.1	24.6	7.3	6.6
LINN	24.2	6.7	7.0	21.1	7.5	7.7
LYON	24.1	7.3	6.2	21.0	7.6	6.9
MIAMI	25.0	7.2	5.7	21.7	7.5	7.2
MORRIS	23.5	6.3	6.9	21.0	7.1	7.6
OSAGE	25.0	7.3	7.7	21.9	8.1	8.2
SHAWNEE	27.7	6.3	6.9	24.0	6.9	7.5
WABAUNSEE	25.8	6.6	6.9	23.0	7.6	7.7
SOUTHEAST						
ALLEN	24.3	7.0	6.1	20.9	7.7	7.1
BOURBON	23.0	6.7	6.2	20.1	7.1	6.9
BUTLER	22.1	5.5	6.6	18.7	6.8	7.6
CHAUTAUQUA	21.9	5.5	5.7	18.5	5.9	6.4
CHEROKEE	22.4	7.1	6.8	19.5	7.0	7.7
COWLEY	23.2	5.7	7.2	19.4	6.0	7.7
CRAWFORD	22.2	6.6	6.6	19.4	6.7	6.6
ELK	22.2	4.7	5.0	18.5	5.9	6.0
GREENWOOD	23.2	5.8	6.0	18.9	7.1	7.7
LABETTE	22.8	6.8	6.8	19.6	7.6	8.3
MONTGOMERY	22.8	6.6	6.2	19.5	7.3	7.3
NEOSHO	22.8	7.2	6.3	19.7	7.6	7.5
WILSON	23.5	6.4	5.9	20.1	7.1	6.7
WOODSON	23.9	7.9	7.7	20.4	8.5	8.4

TABLE 24. FREQUENCY DISTRIBUTION OF OATS YIELD PER ACRE HARVESTED AND AVERAGE YIELD, 1937-1959.

BUSHELS PER ACRE	0 TO 5.9	6.0 TO 7.9	8.0 TO 9.9	10.0 TO 11.9	12.0 TO 13.9	14.0 TO 15.9	16.0 TO 17.9	18.0 TO 19.9	20.0 TO 21.9	22.0 TO 23.9	24.0 TO 25.9	26.0 OR OVER	AVERAGE YIELD BUSHELS
NORTHWEST													
CHEYENNE		1	4		2	3		3		3	3	4	18.5
DECATUR	1	1		4	1		1		4	5	4	2	19.5
GRAHAM	2		2	2	2	1	2	2	4	1	3	2	17.5
NORTON	1	1	3	2			1	2	4	3	3	3	18.9
RAWLINS		1	1	2	1	4		1	2	4	1	6	20.5
SHERIDAN	1	2	2	1	3	1	2	3	2		1	5	17.5
SHERMAN	1	2	4	1	2		1	2	2	2	1	5	17.9
THOMAS	1	2	3	2		2		1	1	6		5	18.3
WEST CENTRAL													
GOVE	1	3	1	3		2	5	2	1	1	1	3	15.9
GREELEY	3	1	6	1	1	3		3	1		2	2	14.0
LANE	2	2	2	1	1	3	2	3	3			4	16.5
LOGAN	3	1	2	2	1	4	2	2	2	1		3	15.0
NESS	3	1	1	1	2	4	2	1	2	1	1	4	16.4
SCOTT	2	2	1	2	2	2	3	5				4	16.3
TREGO	2	2		1	3	1	5	1	2	2	3	1	16.5
WALLACE	3	1	5		2	3		3	2	1	1	2	14.7
WICHITA	3	3	2	1	2	3		2	3		2	2	14.8
SOUTHWEST													
CLARK	1		4	3		4	3	3			2	3	16.1
FINNEY	2	2	1	5		1	2	2	1	1	2	4	16.8
FORD	1	1	3	3	3		3	1	1	2	2	3	16.8
GRANT	5		4	1		2	4	2	3			2	13.3
GRAY	2	3	3	1	1	3	2	1	1	2	1	3	15.1
HAMILTON	4	4	2		2	3		3	2		1	2	13.4
HASKELL	2	4	3	1	1	2	3	1	3	1		2	14.0
HODGEMAN	2	2	2	3	2		2	1	4	1	1	3	15.8
KEARNEY	2		6	2	2	2		2	3	1		3	15.2
MEADE	1	4	2	1	2	4	3	1		1	2	2	15.0
MORTON	5	4	1	1		1	4	3	1	2		1	12.3
SEWARD	4	3	1	2	1	2	3	4	1			2	13.3
STANTON	6	1	2	1	2		4	4		1	1	1	12.2
STEVENS	5	3	1		1		7	3		1		2	13.1

TABLE 24. CONT.

BUSHELS PER ACRE	0 TO 5.9	6.0 TO 7.9	8.0 TO 9.9	10.0 TO 11.9	12.0 TO 13.9	14.0 TO 15.9	16.0 TO 17.9	18.0 TO 19.9	20.0 TO 21.9	22.0 TO 23.9	24.0 TO 25.9	26.0 OR OVER	AVERAGE YIELD BUSHELS
NORTH CENTRAL													
CLAY					1	3	1	2	2	3	1	10	23.5
CLOUD				2	1	3	4	1	3	1	2	6	20.6
JEWELL			1	1	3	2	5	2	1	3	1	4	19.4
MITCHELL		1		3	1	2		1	2	3	3	7	21.5
OSBORNE	1	1		2	2	1	1	1	5	3	1	5	19.9
OTTAWA					1	6	1		5		3	7	21.9
PHILLIPS	1	1	2	4				5	1	4	4	1	17.9
REPUBLIC					1	5	3	2	1	2	3	6	22.0
ROOKS	1	2		2	3		2	6	2	1	2	2	17.1
SMITH	1	1	1	1	2	2	1	3	3	4	1	3	18.6
WASHINGTON					2	2	3	2	4	1		9	23.0
CENTRAL													
BARTON	1			2	2	1	2	4	1	2	6	2	19.7
DICKINSON					2	3	1	2		2	2	11	23.9
ELLIS	2		3	3		2	1	3	3	3	1	2	16.6
ELLSWORTH		1		2	2		4	2	2	2	3	5	20.5
LINCOLN		1		3		1	3	3	3	1	1	7	21.3
MCPHERSON			1		1	1	1	5	2	2	1	9	23.1
MARION				1	1	3	1	1	4	4	1	7	21.7
RICE		1		1		3	2	1	4		6	5	21.4
RUSH	1	2		2		2	4	3		4	2	3	18.6
RUSSELL		1	1	1	3	1	3	3	1	2	2	5	19.4
SALINE				1		2	1	3	3	2	2	9	23.3
SOUTH CENTRAL													
BARBER			1	1	2	3	3	1	2	3	2	5	20.0
COMANCHE			4	1	1	3	4	4	1	2		3	17.5
EDWARDS	2		1	2		1	1	4	3	2	4	3	18.9
HARPER				1	2	2	2	6	1		5	4	20.3
HARVEY				1		1	1	3	4	4		9	23.3
KINGMAN			1	1	2	3	3	1	2	4	3	3	19.7
KIOWA	2		1	2		4	3	1	4		5	1	17.7
PAWNEE		2	1	1	2	1	3	3	3		2	5	19.2
PRATT	1		1	2	1	1	4	4		2	4	3	18.7
RENO				1	2	1		4	5	1	3	6	21.9
SEDGWICK				1	1	1	4	4	1	2	3	6	21.7
STAFFORD			2	1		1	4	3	2	5	3	2	19.8
SUMNER					1	2	4	2	5	2	2	5	21.7

TABLE 24. CONCL.

BUSHELS PER ACRE	0 TO 5.9	6.0 TO 7.9	8.0 TO 9.9	10.0 TO 11.9	12.0 TO 13.9	14.0 TO 15.9	16.0 TO 17.9	18.0 TO 19.9	20.0 TO 21.9	22.0 TO 23.9	24.0 TO 25.9	26.0 OR OVER	AVERAGE YIELD. BUSHELS
NORTHEAST													
ATCHISON						1		1		4	4	13	27.5
BROWN							1	1	2	1	3	15	29.9
DONIPHAN								3	3	1	3	13	27.5
JACKSON					1	1		2	3	1	6	9	25.0
JEFFERSON						1	2		1	7	2	10	25.7
LEAVENWORTH						1	1	2	3	1	3	12	26.6
MARSHALL					1	2	3	2	1	3		11	23.5
NEMAHA						1	1	2	2	3	3	11	27.1
POTTAWATOMIE						2	1	2	3	1	1	13	26.0
RILEY						3		1	1	3	2	13	26.3
WYANDOTTE						2		1	4	1	4	11	26.1
EAST CENTRAL													
ANDERSON					2		1	1	2	1	5	11	26.0
CHASE					2	1	2		1	2	4	11	24.7
COFFEY					1		2	2	6		4	8	24.2
DOUGLAS						2	1	1	2	1	2	14	27.8
FRANKLIN					1	1		2	3	3	3	10	25.9
GEARY				1	1	1		3	2	1	1	13	25.0
JOHNSON						1		1	2	5	4	10	27.3
LINN					2	1	1	2	3	4	1	9	24.2
LYON					1	2	1	3	4	1	4	7	24.1
MIAMI					2	1	1		4	3	2	10	25.0
MORRIS					1	2	1	3	2	6	1	7	23.5
OSAGE					2	1	1	1	2	4	4	8	25.0
SHAWNEE						2		1		1	5	14	27.7
WABAUNSEE					1	2		1	2	3	2	12	25.8
SOUTHEAST													
ALLEN					2	1		4	1	4	1	10	24.3
BOURBON				1	1	1	2	3	3	1	5	6	23.0
BUTLER					1	3	1	2	7	2	1	6	22.1
CHAUTAUQUA						4	4	3	2		3	7	21.9
CHEROKEE				1	1	3	2	3	3	1		9	22.4
COWLEY					1	2	2	2	3	3	1	9	23.2
CRAWFORD				1	1	2	1	5	2	1	4	6	22.2
ELK					1		4	4	1	4	3	6	22.2
GREENWOOD						1	5	2	3	1	2	9	23.2
LABETTE					2	2	3	2	1	2	2	9	22.8
MONTGOMERY				1	1	2	4		3	2	1	9	22.8
NEOSHO			1			3	2	5	1		2	9	22.8
WILSON					1	2		4	4	4		8	23.5
WOODSON					2	1	1	4	5	1	1	8	23.9

TABLE 25. AVERAGE BARLEY YIELD WITH STANDARD DEVIATION AND AVERAGE YEAR-TO-YEAR CHANGE, 1937-1959.

COUNTY	PER ACRE HARVESTED			PER ACRE SEEDED		
	AVERAGE YIELD, BUSHELS	STANDARD DEVIATION	YEAR-TO-YEAR CHANGE, BUSHELS	AVERAGE YIELD, BUSHELS	STANDARD DEVIATION	YEAR-TO-YEAR CHANGE, BUSHELS
NORTHWEST						
CHEYENNE	18.3	8.4	6.7	13.9	8.7	7.6
DECATUR	16.7	7.1	6.8	12.7	7.1	7.4
GRAHAM	14.0	5.8	5.7	10.7	6.1	5.9
NORTON	14.5	6.1	5.7	10.6	6.3	6.4
RAWLINS	18.0	6.4	6.9	13.2	6.7	8.0
SHERIDAN	14.8	6.4	6.9	11.2	6.0	6.3
SHERMAN	15.5	7.0	6.1	11.5	7.4	6.3
THOMAS	16.3	7.1	5.7	12.5	7.1	5.8
WEST CENTRAL						
GOVE	14.7	6.9	6.6	10.7	7.4	7.8
GREELEY	12.8	6.9	5.8	8.7	7.4	6.4
LANE	13.5	6.2	5.9	9.5	6.7	6.7
LOGAN	12.9	5.6	5.4	8.9	6.2	6.0
NESS	14.2	6.6	6.4	10.4	7.1	7.1
SCOTT	13.6	6.1	5.5	10.1	6.5	5.8
TREGO	14.8	6.8	6.6	10.9	7.0	7.6
WALLACE	12.8	6.6	5.5	9.5	6.9	6.0
WICHITA	14.1	7.6	6.5	9.8	7.4	6.7
SOUTHWEST						
CLARK	13.6	6.3	7.1	9.6	7.0	7.4
FINNEY	17.0	7.7	6.5	11.8	8.1	7.2
FORD	15.9	6.4	6.5	10.9	7.0	7.4
GRANT	13.6	7.0	5.6	9.1	7.1	6.4
GRAY	13.8	6.0	6.0	9.1	6.3	6.2
HAMILTON	13.8	7.3	7.8	9.3	7.5	7.3
HASKELL	13.3	6.5	6.4	8.9	6.8	7.3
HODGEMAN	14.6	6.3	6.6	10.1	6.6	7.9
KEARNEY	16.4	8.3	7.3	11.5	8.2	8.5
MEADE	13.6	6.5	7.0	9.9	7.2	7.5
MORTON	12.2	6.7	5.8	8.0	6.5	4.9
SEWARD	12.6	5.9	5.2	8.2	6.2	5.0
STANTON	13.2	6.6	6.1	8.5	6.2	5.5
STEVENS	12.0	5.2	4.3	7.7	5.9	4.7
NORTH CENTRAL						
CLAY	18.9	5.7	5.4	15.6	5.5	5.6
CLOUD	17.5	5.7	5.5	14.7	6.1	6.3
JEWELL	14.6	5.6	5.9	11.8	6.2	6.3
MITCHELL	16.6	6.1	6.4	13.5	5.9	6.0
OSBORNE	15.4	5.9	6.0	12.2	5.8	5.6
OTTAWA	18.4	5.6	4.8	15.7	6.3	5.0
PHILLIPS	14.5	5.7	5.5	11.2	6.6	6.6
REPUBLIC	17.5	5.9	6.1	14.6	6.4	6.1
ROOKS	14.7	5.4	5.5	11.3	5.6	5.5
SMITH	14.4	5.5	5.8	11.5	5.9	6.5
WASHINGTON	17.7	6.6	6.1	16.3	6.4	5.8
CENTRAL						
BARTON	17.0	6.3	7.3	13.4	7.0	8.1
DICKINSON	19.8	5.0	4.7	16.6	6.1	5.7
ELLIS	13.9	6.3	7.3	11.1	6.8	7.7
ELLSWORTH	17.1	6.5	7.1	14.0	7.0	8.0
LINCOLN	16.6	5.9	6.7	13.4	6.3	7.3
MCPHERSON	19.5	5.7	6.5	16.7	5.6	6.4
MARION	18.5	5.2	4.4	16.0	5.5	4.6
RICE	17.3	4.9	5.3	13.9	5.5	5.8
RUSH	14.1	6.7	8.1	10.7	7.2	8.5
RUSSELL	15.1	5.5	6.8	11.9	5.9	7.1
SALINE	19.0	5.4	5.4	16.0	6.2	6.5

TABLE 25. CONCL.

COUNTY	PER ACRE HARVESTED			PER ACRE SEEDED		
	AVERAGE YIELD, BUSHELS	STANDARD DEVIATION	YEAR-TO-YEAR CHANGE, BUSHELS	AVERAGE YIELD, BUSHELS	STANDARD DEVIATION	YEAR-TO-YEAR CHANGE, BUSHELS
SOUTH CENTRAL						
BARBER	17.8	6.3	5.6	14.2	7.1	5.6
COMANCHE	14.3	5.3	5.9	10.8	6.2	6.8
EDWARDS	15.3	5.4	6.3	11.3	6.6	7.5
HARPER	17.9	4.2	4.1	14.8	5.2	5.2
HARVEY	20.6	5.6	6.3	17.6	5.8	6.8
KINGMAN	17.2	4.5	4.7	14.6	4.9	5.4
KIOWA	15.8	5.6	6.7	12.1	6.6	7.5
PAWNEE	16.0	5.9	6.9	11.9	7.0	8.0
PRATT	16.8	5.6	6.6	13.5	6.2	6.8
RENO	18.9	4.9	6.3	15.7	5.5	7.0
SEDGWICK	19.5	5.5	6.0	16.6	5.7	5.9
STAFFORD	17.4	5.2	6.1	13.5	6.1	6.5
SUMNER	18.7	5.2	5.2	15.7	5.6	5.4
NORTHEAST						
ATCHISON	20.6	7.9	8.0	19.2	8.2	9.3
BROWN	21.3	8.0	7.7	19.8	7.9	8.9
DONIPHAN	22.5	6.9	5.0	20.7	6.3	5.5
JACKSON	20.2	5.7	5.1	17.7	6.7	6.1
JEFFERSON	21.0	5.5	4.4	18.8	6.4	6.4
LEAVENWORTH	21.0	6.1	4.2	18.7	6.6	5.6
MARSHALL	20.3	5.9	6.8	17.8	6.3	7.6
NEMAHA	21.0	5.4	5.6	19.1	6.1	6.9
POTTAWATOMIE	21.1	5.4	5.3	17.6	6.1	6.1
RILEY	21.9	6.3	5.8	18.8	6.4	5.6
WYANDOTTE	22.0	4.8	4.3	20.6	5.8	6.6
EAST CENTRAL						
ANDERSON	22.4	5.7	3.9	19.6	5.8	5.3
CHASE	21.4	4.3	4.6	17.9	5.5	5.8
COFFEY	21.2	6.1	4.8	17.9	6.7	6.2
DOUGLAS	23.2	6.9	4.7	20.4	6.8	5.5
FRANKLIN	22.0	6.0	4.2	18.6	6.3	5.8
GEARY	20.7	4.6	4.3	17.7	4.9	4.7
JOHNSON	23.1	6.0	4.8	20.6	6.2	5.9
LINN	21.8	5.9	5.3	19.0	6.2	6.0
LYON	21.8	6.0	5.8	18.7	5.9	6.4
MIAMI	21.8	6.1	4.4	19.1	6.1	5.3
MORRIS	19.9	4.5	4.9	17.3	5.2	5.6
OSAGE	22.0	5.3	4.2	19.4	6.1	5.3
SHAWNEE	23.6	5.9	5.7	20.8	6.4	7.3
WABAUNSEE	22.0	5.8	4.8	18.8	6.0	6.0
SOUTHEAST						
ALLEN	20.8	6.5	6.1	18.3	6.4	6.7
BOURBON	20.5	6.4	5.8	18.2	6.2	6.4
BUTLER	19.6	4.8	5.3	16.7	5.3	6.4
CHAUTAUQUA	18.9	5.3	6.3	16.1	5.8	7.1
CHEROKEE	19.7	6.9	5.3	16.9	7.2	5.8
COWLEY	19.5	5.2	5.0	17.0	5.9	6.1
CRAWFORD	20.2	6.8	5.2	17.8	6.7	5.6
ELK	20.3	5.5	5.2	17.6	5.9	5.9
GREENWOOD	20.7	5.0	4.4	17.6	5.4	5.5
LABETTE	19.7	6.3	4.9	16.8	6.1	5.2
MONTGOMERY	19.8	6.2	4.0	17.2	6.1	5.1
NEOSHO	19.8	6.1	4.2	17.1	6.1	4.6
WILSON	20.4	5.9	4.5	17.6	5.4	4.7
WOODSON	19.8	5.8	4.9	17.2	6.0	5.3

TABLE 26. FREQUENCY DISTRIBUTION OF BARLEY YIELD PER ACRE HARVESTED AND AVERAGE YIELD, 1937-1959.

BUSHELS PER ACRE	0 TO 5.9	6.0 TO 7.9	8.0 TO 9.9	10.0 TO 11.9	12.0 TO 13.9	14.0 TO 15.9	16.0 TO 17.9	18.0 TO 19.9	20.0 TO 21.9	22.0 TO 23.9	24.0 TO 25.9	26.0 OR OVER	AVERAGE YIELD BUSHELS
NORTHWEST													
CHEYENNE		2	2	1	2	3	2	3	2	2		4	18.3
DECATUR	1	1	3	1	3		5	3	2	1	1	2	16.7
GRAHAM	2	1	2	4	2	2	4	1	4			1	14.0
NORTON	1	1	3	4	4	2	2	2		2		2	14.5
RAWLINS		2	1	1	1	3	2	5	2	3		3	18.0
SHERIDAN	1	3		4	3	3	2	2	2	1	1	1	14.8
SHERMAN	1	3	1	2	5	1	2	1	4			3	15.5
THOMAS	1	3		1	6	2		3		3	1	3	16.3
WEST CENTRAL													
GOVE	2	2	1	4	3	3	2		2		2	2	14.7
GREELEY	3	3	2	4	2	3	1	3				2	12.8
LANE	2	4	2	3	1	4	1	1	2	1	1	1	13.5
LOGAN	3	1	4	4	1	2	3	1	2	2			12.9
NESS	2	2	2	3	3	3	2	1	1	1	2	1	14.2
SCOTT	2	2	5	1	3	2	2	2	1	2	1		13.6
TREGO	3	1	1	2	2	7	1	3		1	1	1	14.8
WALLACE	3	3	3	2	2	3	2	3	1			1	12.8
WICHITA	2	5	1	2	2	1	4	1	2	1		2	14.1
SOUTHWEST													
CLARK	2	2	3	2	5	4				2	3		13.6
FINNEY	1	2	3	2	1	3		1	4	1	1	4	17.0
FORD	2	1	1	1	3	2	4	4	2		1	2	15.9
GRANT	2	4	3	2	1	2	2	1	2	2	1	1	13.6
GRAY	2	2	2	5	1	2	3	2	1	2	1		13.8
HAMILTON	3	2	1	4	2	3	3	1		1		3	13.8
HASKELL	3	2	5		2	3	3		2	1	1	1	13.3
HODGEMAN	2		4	5	1		2	3	2	2	2		14.6
KEARNEY	2	1	4	2	1	2	2	2	2			5	16.4
MEADE	2	4	2	3	1	3		4	2		1	1	13.6
MORTON	4	2	4	1	4	2	1	2	2			1	12.2
SEWARD	3	1	4	4	2	1	3	2	2			1	12.6
STANTON	3	3	1	2		6	3	1	2		2		13.2
STEVENS	4	1	5	2	1	4	2	2	2				12.0

TABLE 26. CONT.

BUSHELS PER ACRE	0 TO 5.9	6.0 TO 7.9	8.0 TO 9.9	10.0 TO 11.9	12.0 TO 13.9	14.0 TO 15.9	16.0 TO 17.9	18.0 TO 19.9	20.0 TO 21.9	22.0 TO 23.9	24.0 TO 25.9	26.0 OR OVER	AVERAGE YIELD BUSHELS
NORTH CENTRAL													
CLAY				2	2	4	2	5	2	1	2	3	18.9
CLOUD			1	2	3	3	6	1	2		3	2	17.5
JEWELL		4	1	2	5	1	5	1	1		3		14.6
MITCHELL		1	2	1	5	4	2		2	4		2	16.6
OSBORNE		3	1	4	3	2		3	3	4			15.4
OTTAWA			1	2	3	2	3	3	2	5		2	18.4
PHILLIPS	1	1	1	6	5	1	1	2	1	2	1	1	14.5
REPUBLIC			2	2	3	3	3	2	1	4	1	2	17.5
ROOKS	1	1	1	3	5	3	3	3	1	1		1	14.7
SMITH		2	3	5	3	2	1	2	2	1	2		14.4
WASHINGTON	1		1	2	2	2	5	1	4	1		4	17.7
CENTRAL													
BARTON	1			3	6	2	2	2		3	2	2	17.0
DICKINSON				1	3	2	2	4	4	2	2	3	19.8
ELLIS	1	2	3	5	2	1	2	1	3	2		1	13.9
ELLSWORTH		1	3	1	2	5	1	2	1	4	1	2	17.1
LINCOLN		1	3	2	2	4	2	1	2	4	1	1	16.6
MCPHERSON			1	1	2	4	1	3	2	2	2	5	19.5
MARION				1	3	4	4	4	2	1	1	3	18.5
RICE		1		1	4	4	3	4		3	2	1	17.3
RUSH	2	3	2	1	4	2	1	4	1		2	1	14.1
RUSSELL		3	1	1	7	1	1	4	2	2		1	15.1
SALINE			1	2	1	4	2	3	2	3	3	2	19.0
SOUTH CENTRAL													
BARBER		2		3	2	2	2	2	4	3		3	17.8
COMANCHE		3	3	2	3	2	5	1	2	1	1		14.3
EDWARDS	1	1	3	2	2	2	4	4	3			1	15.3
HARPER				1	4	2	5	7	1		1	2	17.9
HARVEY				1	2	3	3	2	3	1	3	5	20.6
KINGMAN			1	2	2	5	2	6	1	2	1	1	17.2
KIOWA	1	1	2	1	2	3	5	2	3	2		1	15.8
PAWNEE		2	4	1	2	3	1	1	5	3	1		16.0
PRATT	1		1	2	5	2	2	3	3	2		2	16.8
RENO		1			2	3	5	3	2	3	3	1	18.9
SEDGWICK			1	1		4	6	1	2	2	1	5	19.5
STAFFORD		1	1	1	4	3	1	2	6	1	3		17.4
SUMNER			1	1	2	4	1	6	3	1	2	2	18.7

TABLE 26. CONCL.

BUSHELS PER ACRE	0 TO 5.9	6.0 TO 7.9	8.0 TO 9.9	10.0 TO 11.9	12.0 TO 13.9	14.0 TO 15.9	16.0 TO 17.9	18.0 TO 19.9	20.0 TO 21.9	22.0 TO 23.9	24.0 TO 25.9	26.0 OR OVER	AVERAGE YIELD BUSHELS
NORTHEAST													
ATCHISON	1	1			1	3	1	1	5	4		6	20.6
BROWN	1		1			1	4	2	4	2		8	21.3
DONIPHAN			1			2	4	2	3	3	1	7	22.5
JACKSON				1	2	3	1	4	3	4	1	4	20.2
JEFFERSON			1			4	1	4	3	4	1	5	21.0
LEAVENWORTH			1	1		1	3	4	4	2		7	21.0
MARSHALL			1		2	2	4		4	5	1	4	20.3
NEMAHA						4	5	2	2	2	5	3	21.0
POTTAWATOMIE					1	2	3	5	3	3	2	4	21.1
RILEY					1	3	2	4	4	2	2	5	21.9
WYANDOTTE						4		2	6	3	1	7	22.0
EAST CENTRAL													
ANDERSON				1	1	2	2	2	3	2	1	9	22.4
CHASE				1	1		1	3	8	3	3	3	21.4
COFFEY				1	2	1	4	3	4		1	7	21.2
DOUGLAS				1	1	1	1	5	3		1	10	23.2
FRANKLIN					3	2	2	2	1	3	4	6	22.0
GEARY					1	3	2	3	5	3	3	3	20.7
JOHNSON				1	1	1	3	1	3	1	2	10	23.1
LINN				1	2	1	2	2	2	4	3	6	21.8
LYON				1	3	1		3	4		4	7	21.8
MIAMI				1	2	3		4	1	2	1	9	21.8
MORRIS				1		3	5	2	4	3	3	2	19.9
OSAGE					1	2	3	3	2	3	3	6	22.0
SHAWNEE					1	1		3	5	3	2	8	23.6
WABAUNSEE						2	3	4	6		4	4	22.0
SOUTHEAST													
ALLEN			1	2	2		2	3	2	3	1	7	20.8
BOURBON			1	2	2		3	1	3	4	3	4	20.5
BUTLER				1	1	2	6	1	7		2	3	19.6
CHAUTAUQUA			1	2	2		3	7	3	1		4	18.9
CHEROKEE			1	2	2	4		4	1	3	2	4	19.7
COWLEY				1	3	2	3	4	3	2	2	3	19.5
CRAWFORD		1			3	3	2	3	1	4	1	5	20.2
ELK				1	2	3	1	2	6	3	1	4	20.3
GREENWOOD					3	2	1	3	6	2	2	4	20.7
LABETTE				3	3	1	2	3	3	1	2	5	19.7
MONTGOMERY			1	2	3		1	3	7		1	5	19.8
NEOSHO		1		1	2	2	3	2	4	2	2	4	19.8
WILSON				2	3	1	2	3	2	2	4	4	20.4
WOODSON		1		1	2	2	2	2	5	2	1	5	19.8

TABLE 27. FREQUENCY DISTRIBUTION OF ALFALFA HAY YIELD PER ACRE HARVESTED AND AVERAGE YIELD, 1937-1959.

TONS PER ACRE	0 TO .59	.60 TO .89	.90 TO 1.19	1.20 TO 1.49	1.50 TO 1.79	1.80 TO 2.09	2.10 TO 2.39	2.40 TO 2.69	2.70 TO 2.99	3.00 TO 3.29	3.30 TO 3.59	3.6 OR OVER	AVERAGE YIELD TONS
NORTHWEST													
CHEYENNE				3	6	4	6	3	1				1.91
DECATUR				1	3	5	4	6	3	1			2.20
GRAHAM		1	2	1	4	10	3	2					1.80
NORTON			1	4	4	7	5	2					1.83
RAWLINS					7	4	7	2	2	1			2.09
SHERIDAN				3	1	1	8	8	2				2.22
SHERMAN				2	4	5	5	3	4				2.10
THOMAS				3	2	4	8	3	1	2			2.13
WEST CENTRAL													
GOVE					5	2	7	6	1	1	1		2.25
GREELEY	7					7	3	1	1	3	1		1.65
LANE			1	2	3	4	2	6	3			2	2.25
LOGAN			2	1	3	4	9	3		1			2.01
NESS		2	1		4	4	6	4	1		1		1.98
SCOTT				2		2	2	5	4	4	1	3	2.70
TREGO			1	3	3	4	5	5	1	1			2.03
WALLACE			3	1	3	7	2	3	3	1			1.99
WICHITA			1	2	3	6	2	3	2	3	1		2.19
SOUTHWEST													
CLARK			2	3	6	5	5	2					1.77
FINNEY					2	3	3	6	4	4		1	2.53
FORD					2	7	5	6	2	1			2.22
GRANT	1		2	1	2	3	3	3	1	4	1	2	2.28
GRAY				1	2	4	7	3	4	1	1		2.30
HAMILTON				2	3	6	5		3	3	1		2.17
HASKELL	7		1			4	4	2	1	3		1	1.69
HODGEMAN				2	1	6	3	6	2	1	1	1	2.29
KEARNEY					1	5	5	4	5	3			2.41
MEADE				3	7	11	1		1				1.77
MORTON	10				2	3	1	4	2	1			1.31
SEWARD	10				2	3	1	2	2	1	1	1	1.43
STANTON	10				1	1	2	3	2	3	1		1.47
STEVENS	7				3	3	6		2		2		1.58

TABLE 27. CONT.

TONS PER ACRE	0 TO .59	.60 TO .89	.90 TO 1.19	1.20 TO 1.49	1.50 TO 1.79	1.80 TO 2.09	2.10 TO 2.39	2.40 TO 2.69	2.70 TO 2.99	3.00 TO 3.29	3.30 TO 3.59	3.6 OR OVER	AVERAGE YIELD TONS
NORTH CENTRAL													
CLAY			3	3	6	4	6	1					1.70
CLOUD		1	1	3	4	9	4	1					1.73
JEWELL		1	4	3	2	7	5	1					1.69
MITCHELL		1	3	3	2	3	6	4	1				1.85
OSBORNE			3	2	4	6	3	3	2				1.87
OTTAWA				5	6	4	6	2					1.81
PHILLIPS		1	4	2	7	6	2	1					1.61
REPUBLIC		1		5	4	7	4	2					1.77
ROOKS			1	4	3	9	2	3	1				1.86
SMITH		1	4	2	3	9	1	3					1.65
WASHINGTON		1	1	3	7	6	4	1					1.72
CENTRAL													
BARTON				1	5	4	7	3	2	1			2.10
DICKINSON		1	1	4	1	8	4	4					1.86
ELLIS			2	5	1	5	5	5					1.85
ELLSWORTH		1	1	2	6	4	9						1.81
LINCOLN			1	3	2	5	7	5					1.97
MCPHERSON			3	2	6	5	3	4					1.80
MARION		1	3	3	2	7	4	3					1.75
RICE				3	7	5	4	3	1				1.90
RUSH		1	1	1	3	7	7	2	1				1.91
RUSSELL		1		4	2	5	5	4	2				1.94
SALINE				3	1	8	5	5	1				2.04
SOUTH CENTRAL													
BARBER				3	12	3	2	1	2				1.79
COMANCHE			3	1	3	7	6	2	1				1.88
EDWARDS				2	2	6	8	4	1				2.06
HARPER		1	1	5	7	4	4	1					1.69
HARVEY			4	2	5	9	3						1.68
KINGMAN			3	4	5	8	2	1					1.70
KIOWA	1	1	1	3	6	4	3	3		1			1.73
PAWNEE				2	2	8	7	4					2.04
PRATT			2	3	6	4	6	2					1.80
RENO				3	6	7	4	3					1.87
SEDGWICK			1	3	4	5	9	1					1.90
STAFFORD				2	4	11	5	1					1.85
SUMNER			1	3	4	6	7	1		1			1.90

TABLE 27. CONCL.

TONS PER ACRE	0 TO .59	.60 TO .89	.90 TO 1.19	1.20 TO 1.49	1.50 TO 1.79	1.80 TO 2.09	2.10 TO 2.39	2.40 TO 2.69	2.70 TO 2.99	3.00 TO 3.29	3.30 TO 3.59	3.6 OR OVER	AVERAGE YIELD TONS
NORTHEAST													
ATCHISON			1	1	3	6	8	3		1			2.07
BROWN			2		2	5	9	3	2				2.07
DONIPHAN			1		2	3	3	12		1	1		2.30
JACKSON		1		3	3	7	6	2	1				1.92
JEFFERSON			1	1	1	5	8	6	1				2.11
LEAVENWORTH				1	1	5	8	3	5				2.23
MARSHALL		1	1	1	6	6	8						1.80
NEMAHA		1	1	2	3	8	7		1				1.85
POTTAWATOMIE			1	1	2	8	6	5					2.02
RILEY			1	1	4	5	7	3	2				2.02
WYANDOTTE				1		5	7	7	2	1			2.27
EAST CENTRAL													
ANDERSON				3	3	3	9	3	2				2.07
CHASE			1	3	2	5	3	5	3	1			2.10
COFFEY			1	2	3	7	9		1				1.93
DOUGLAS				2	1	6	4	7	1	1		1	2.24
FRANKLIN			1		4	5	8	2	3				2.10
GEARY			2	1	2	6	4	6	2				2.02
JOHNSON			1	1	4	1	5	10	1				2.13
LINN				2	5	3	7	6					2.03
LYON			1	4	2	7	6	2	1				1.89
MIAMI				2	2	5	8	5	1				2.06
MORRIS		1	1	3	3	6	6	3					1.84
OSAGE			2	1	3	6	5	4	2				2.00
SHAWNEE			1		4	5	6	6		1			2.09
WABAUNSEE			1	3	2	6	4	5	2				2.02
SOUTHEAST													
ALLEN			1	3	4	4	8	2		1			1.95
BOURBON					6	3	5	8	1				2.16
BUTLER		1	1	2	3	5	5	5	1				1.95
CHAUTAUQUA			1	2	1	4	7	5	2	1			2.13
CHEROKEE			1	3	2	6	9	2					1.96
COWLEY		1	2	2	3	6	3	5	1				1.91
CRAWFORD				5	2	2	10	4					1.97
ELK			1	3	1	7	4	5	1	1			2.04
GREENWOOD				4	1	7	4	3	2	2			2.10
LABETTE			1	3	4	4	7	4					1.90
MONTGOMERY		1			4	7	4	5	2				2.05
NEOSHO				3	3	5	4	5	3				2.11
WILSON		1		3	3	4	7	3	2				1.97
WOODSON			1	3	2	8	6	2	1				1.94

TABLE 28. CORRELATION COEFFICIENTS OF CROP YIELDS ON FARM MANAGEMENT ASSOCIATION FARMS, 1948-1959.

CROPS	ASSOCIATION	NUMBER OF FARMS	NUMBER OF OBSERVATIONS	AVERAGF NUMBER OF OBS. PER FARM	CORRELATION COEFFICIENT	NUMBER OF CORRELATION COEFF. ON A FARM BASIS	AVERAGE CORRELATION COEFFICIENT PER FARM
WHEAT-CORN							
	1	52	369	7.1	.31	43	.11
	2	57	62	1.1	.33	16	.05-
	3	29	4	.1	.36	1	1.00-
	4	36	311	8.6	.18	32	.13
	5	58	96	1.7	.43	15	.30
	6	55	303	5.5	.20	43	.20
WHEAT-GRAIN SORGHUM							
	1	52	305	5.9	.40	49	.20
	2	57	414	7.3	.34	54	.30
	3	29	185	6.4	.13	26	.05-
	4	36	169	4.7	.10	30	.03-
	5	58	405	7.0	.29	57	.23
	6	55	228	4.1	.12	43	.00
WHEAT-SOYBEANS							
	1	52	4	.1	.41	1	1.00
	2	57	22	.4	.15	6	.01
	3	29		.0	.00		.00
	4	36	65	1.8	.20	10	.12
	5	58	27	.5	.57	1	1.00
	6	55	167	3.0	.10	26	.26
WHEAT-ALFALFA							
	1	52	535	10.3	.28	50	.10
	2	57	581	10.2	.22	54	.20
	3	29	118	4.1	.11	14	.18
	4	36	328	9.1	.14	34	.01
	5	58	192	3.3	.11	27	.12
	6	55	437	7.9	.06	51	.02-
WHEAT-SILAGE							
	1	52	430	8.3	.18	45	.08
	2	57	472	8.3	.21	51	.10
	3	29	163	5.6	.01	20	.04
	4	36	230	6.4	.11-	31	.05-
	5	58	374	6.4	.16	54	.24
	6	55	390	7.1	.04	50	.19

TABLE 28. CONT.

CROPS	ASSOCIATION	NUMBER OF FARMS	NUMBER OF OBSERVATIONS	AVERAGE NUMBER OF OBS. PER FARM	CORRELATION COEFFICIENT	NUMBER OF CORRELATION COEFF. ON A FARM BASIS	AVERAGE CORRELATION COEFFICIENT PER FARM
CORN-GRAIN SORGHUM							
	1	52	200	3.8	.63	37	.53
	2	57	21	.4	.60	6	.64
	3	29	3	.1	.31-	1	1.00
	4	36	124	3.4	.64	25	.63
	5	58	75	1.3	.52	15	.47
	6	55	151	2.7	.58	33	.51
CORN-SOYBEANS							
	1	52	1	.0	.00		.00
	2	57	5	.1	.22		.00
	3	29		.0	.00		.00
	4	36	58	1.6	.68	9	.55
	5	58	7	.1	.06-		.00
	6	55	136	2.5	.47	23	.43
CORN-ALFALFA							
	1	52	373	7.2	.52	44	.40
	2	57	56	1.0	.14	16	.19
	3	29	3	.1	.82-	1	1.00-
	4	36	262	7.3	.45	30	.40
	5	58	33	.6	.35	7	.24-
	6	55	292	5.3	.39	42	.26
CORN-SILAGE							
	1	52	251	4.8	.33	40	.29
	2	57	40	.7	.51	12	.53
	3	29		.0	.00		.00
	4	36	170	4.7	.30	27	.46
	5	58	71	1.2	.58	14	.35
	6	55	264	4.8	.25	39	.42
GRAIN SORGHUM-SOYBEANS							
	1	52	4	.1	.84	1	1.00
	2	57	9	.2	.65	2	.08-
	3	29		.0	.00		.00
	4	36	35	1.0	.53	8	.23
	5	58	26	.4	.15-	1	1.00-
	6	55	82	1.5	.52	14	.36

TABLE 28. CONCL.

CROPS	ASSOCIATION	NUMBER OF FARMS	NUMBER OF OBSERVATIONS	AVERAGE NUMBER OF OBS. PER FARM	CORRELATION COEFFICIENT	NUMBER OF CORRELATION COEFF. ON A FARM BASIS	AVERAGE CORRELATION COEFFICIENT PER FARM
GRAIN SORGHUM-ALFALFA							
	1	52	295	5.7	.47	50	.27
	2	57	370	6.5	.40	49	.34
	3	29	68	2.3	.25	10	.31
	4	36	153	4.3	.40	27	.40
	5	58	151	2.6	.31	23	.16
	6	55	229	4.2	.49	43	.45
GRAIN SORGHUM-SILAGE							
	1	52	246	4.7	.44	41	.41
	2	57	324	5.7	.67	48	.68
	3	29	103	3.6	.29	19	.49
	4	36	117	3.3	.45	24	.59
	5	58	307	5.3	.48	48	.47
	6	55	208	3.8	.58	36	.58
SOYBEANS-ALFALFA							
	1	52	3	.1	.81-		.00
	2	57	21	.4	.29	6	.71
	3	29		.0	.00		.00
	4	36	56	1.6	.40	10	.25
	5	58	11	.2	.02	1	1.00-
	6	55	124	2.3	.37	20	.25
SOYBEANS-SILAGE							
	1	52	3	.1	.40-		.00
	2	57	18	.3	.70	5	.59
	3	29		.0	.00		.00
	4	36	25	.7	.03-	6	.05
	5	58	24	.4	.09	1	1.00
	6	55	119	2.2	.25	21	.20
ALFALFA-SILAGE							
	1	52	402	7.7	.26	47	.33
	2	57	423	7.4	.37	48	.38
	3	29	77	2.7	.16	10	.03-
	4	36	221	6.1	.31	30	.45
	5	58	146	2.5	.14	22	.01
	6	55	412	7.5	.30	48	.39

TABLE 29. CORRELATION COEFFICIENTS OF CROP YIELDS BY COUNTY, 1937-1959.

	GRAIN SORGHUM	ALFALFA	SOYBEANS	CORN	OATS	BARLEY
ALLEN						
WHEAT	.17	.18-	.03	.17	.78	.83
GR. SORGHUM		.64	.87	.87	.13-	.24
ALFALFA			.70	.66	.13-	.07-
SOYBEANS				.82	.23-	.10
CORN					.06-	.17
OATS						.74
ANDERSON						
WHEAT	.35	.07-	.05	.25	.76	.83
GR. SORGHUM		.70	.81	.84	.02	.36
ALFALFA			.82	.74	.18-	.16-
SOYBEANS				.83	.16-	.02
CORN					.08-	.20
OATS						.75
ATCHISON						
WHEAT	.55	.17	.29	.30	.53	.61
GR. SORGHUM		.55	.71	.67	.19	.44
ALFALFA			.67	.64	.02-	.05-
SOYBEANS				.63	.25	.22
CORN					.11	.34
OATS						.68
BARBER						
WHEAT	.24	.46	.01	.42	.27	.79
GR. SORGHUM		.66	.57	.88	.06	.15
ALFALFA			.18	.84	.16	.47
SOYBEANS				.38	.06	.01
CORN					.12	.32
OATS						.52
BARTON						
WHEAT	.31	.24	.12-	.29	.31	.55
GR. SORGHUM		.83	.41	.93	.08-	.23
ALFALFA			.25	.79	.05	.25
SOYBEANS				.44	.08-	.23-
CORN					.05	.17
OATS						.67
BOURBON						
WHEAT	.25	.09-	.17	.28	.75	.77
GR. SORGHUM		.63	.90	.92	.03-	.24
ALFALFA			.71	.64	.02-	.21-
SOYBEANS				.83	.03-	.16
CORN					.01-	.18
OATS						.64
BROWN						
WHEAT	.40	.25	.33	.12	.47	.57
GR. SORGHUM		.68	.86	.75	.44	.54
ALFALFA			.75	.79	.36	.10
SOYBEANS				.87	.34	.32
CORN					.32	.23
OATS						.66

TABLE29. CONT.

	GRAIN SORGHUM	ALFALFA	SOYBEANS	CORN	OATS	BARLEY
BUTLER						
WHEAT	.36	.12-	.31	.15	.19	.69
GR. SORGHUM		.76	.87	.89	.22-	.19
ALFALFA			.75	.87	.15-	.02-
SOYBEANS				.89	.29-	.17
CORN					.20-	.03
OATS						.40
CHASE						
WHEAT	.25	.12-	.17	.06	.24	.47
GR. SORGHUM		.76	.80	.82	.34-	.26
ALFALFA			.73	.75	.33-	.02-
SOYBEANS				.89	.44-	.10
CORN					.38-	.07
OATS						.42
CHAUTAUQUA						
WHEAT	.09	.39-	.05	.06	.52	.73
GR. SORGHUM		.61	.82	.88	.10	.08
ALFALFA			.79	.70	.20-	.28-
SOYBEANS				.86	.02-	.08
CORN					.08	.05
OATS						.62
CHEROKEE						
WHEAT	.29	.16-	.23	.29	.73	.81
GR. SORGHUM		.59	.82	.85	.31	.31
ALFALFA			.66	.61	.04-	.14-
SOYBEANS				.86	.16	.21
CORN					.16	.23
OATS						.82
CHEYENNE						
WHEAT	.45	.56	.28	.50	.66	.79
GR. SORGHUM		.84	.24-	.76	.54	.55
ALFALFA			.22-	.77	.65	.68
SOYBEANS				.03	.09	.04-
CORN					.44	.59
OATS						.78
CLARK						
WHEAT	.47	.16	.40	.45	.36	.67
GR. SORGHUM		.63	.09	.76	.43	.55
ALFALFA			.06	.55	.39	.27
SOYBEANS				.12	.06	.00
CORN					.10	.31
OATS						.81
CLAY						
WHEAT	.07	.00-	.24	.11	.22	.54
GR. SORGHUM		.51	.37	.82	.23-	.11
ALFALFA			.44	.75	.25	.15
SOYBEANS				.47	.08-	.21
CORN					.03	.20
OATS						.64

TABLE29. CONT.

	GRAIN SORGHUM	ALFALFA	SOYBEANS	CORN	OATS	BARLEY
CLOUD						
WHEAT	.48	.18	.38	.35	.39	.49
GR. SORGHUM		.67	.75	.89	.17	.42
ALFALFA			.71	.77	.28	.18
SOYBEANS				.79	.09	.17
CORN					.17	.22
OATS						.70
COFFEY						
WHEAT	.11	.22-	.07	.13	.67	.82
GR. SORGHUM		.64	.83	.87	.26-	.18
ALFALFA			.79	.73	.29-	.10-
SOYBEANS				.84	.27-	.15
CORN					.26-	.08
OATS						.70
COMANCHE						
WHEAT	.26	.17	.18	.47	.28	.69
GR. SORGHUM		.65	.21	.76	.38	.26
ALFALFA			.14	.67	.15	.13
SOYBEANS				.13	.09-	.09-
CORN					.26	.44
OATS						.64
COWLEY						
WHEAT	.39	.06-	.38	.21	.50	.75
GR. SORGHUM		.71	.92	.89	.38	.44
ALFALFA			.76	.84	.34	.17
SOYBEANS				.94	.37	.41
CORN					.36	.30
OATS						.61
CRAWFORD						
WHEAT	.26	.27-	.03	.12	.59	.71
GR. SORGHUM		.48	.75	.80	.06	.08
ALFALFA			.74	.67	.18-	.31-
SOYBEANS				.87	.14-	.01-
CORN					.08-	.04-
OATS						.55
DECATUR						
WHEAT	.46	.63	.03	.45	.52	.75
GR. SORGHUM		.87	.04	.86	.35	.58
ALFALFA			.03	.77	.31	.51
SOYBEANS				.38	.08	.18-
CORN					.43	.47
OATS						.71
DICKINSON						
WHEAT	.22	.04	.24-	.19	.23	.58
GR. SORGHUM		.74	.53	.92	.20-	.07
ALFALFA			.38	.77	.15	.22
SOYBEANS				.56	.25-	.23-
CORN					.11-	.08
OATS						.64

TABLE 29. CONT.

	GRAIN SORGHUM	ALFALFA	SOYBEANS	CORN	OATS	BARLEY
DONIPHAN						
WHEAT	.49	.42	.64	.19	.55	.74
GR. SORGHUM		.70	.83	.66	.28	.59
ALFALFA			.75	.75	.22	.24
SOYBEANS				.68	.49	.56
CORN					.15	.19
OATS						.66
DOUGLAS						
WHEAT	.50	.13	.15	.19	.62	.87
GR. SORGHUM		.69	.69	.78	.22	.43
ALFALFA			.75	.86	.02	.07
SOYBEANS				.77	.00-	.10
CORN					.01-	.14
OATS						.76
EDWARDS						
WHEAT	.31	.22	.05	.21	.23	.60
GR. SORGHUM		.70	.40	.89	.11	.44
ALFALFA			.13	.65	.35	.59
SOYBEANS				.19	.02-	.00-
CORN					.05	.30
OATS						.68
ELK						
WHEAT	.11	.45-	.04	.06-	.70	.72
GR. SORGHUM		.68	.84	.88	.06-	.16
ALFALFA			.75	.79	.45-	.29-
SOYBEANS				.87	.19-	.00
CORN					.27-	.00
OATS						.63
ELLIS						
WHEAT	.34	.38	.28	.40	.59	.64
GR. SORGHUM		.79	.22	.94	.39	.44
ALFALFA			.12	.83	.56	.54
SOYBEANS				.33	.13	.05-
CORN					.45	.38
OATS						.82
ELLSWORTH						
WHEAT	.29	.37	.64	.34	.37	.52
GR. SORGHUM		.71	.49	.93	.04-	.08
ALFALFA			.41	.73	.30	.28
SOYBEANS				.54	.29	.61
CORN					.09	.03
OATS						.55
FINNEY						
WHEAT	.45	.45	.15	.66	.50	.62
GR. SORGHUM		.69	.14-	.88	.33	.64
ALFALFA			.38-	.72	.15	.63
SOYBEANS				.06-	.15-	.39-
CORN					.35	.68
OATS						.76

TABLE 29. CONT.

	GRAIN SORGHUM	ALFALFA	SOYBEANS	CORN	OATS	BARLEY
FORD						
WHEAT	.45	.20	.51	.49	.41	.54
GR. SORGHUM		.53	.25	.88	.50	.57
ALFALFA			.00	.47	.23	.42
SOYBEANS				.27	.22	.01-
CORN					.38	.51
OATS						.76
FRANKLIN						
WHEAT	.49	.06	.16	.18	.52	.83
GR. SORGHUM		.61	.78	.84	.10	.45
ALFALFA			.67	.71	.05	.06
SOYBEANS				.80	.04-	.17
CORN					.06-	.18
OATS						.67
GEARY						
WHEAT	.11	.31-	.21	.06-	.33	.64
GR. SORGHUM		.59	.75	.78	.31-	.35
ALFALFA			.53	.80	.19-	.14-
SOYBEANS				.65	.09-	.45
CORN					.25-	.00
OATS						.37
GOVE						
WHEAT	.33	.48	.22	.53	.18	.57
GR. SORGHUM		.78	.02	.94	.48	.55
ALFALFA			.13-	.82	.41	.68
SOYBEANS				.19	.04	.16-
CORN					.48	.63
OATS						.76
GRAHAM						
WHEAT	.40	.60	.04-	.42	.39	.69
GR. SORGHUM		.74	.34	.94	.43	.32
ALFALFA			.10	.72	.64	.52
SOYBEANS				.38	.08	.09-
CORN					.45	.24
OATS						.64
GRANT						
WHEAT	.59	.51	.08-	.72	.52	.74
GR. SORGHUM		.72	.09	.84	.18	.51
ALFALFA			.15-	.61	.07	.43
SOYBEANS				.03	.37	.00-
CORN					.31	.66
OATS						.74
GRAY						
WHEAT	.45	.29	.28	.47	.50	.65
GR. SORGHUM		.51	.03-	.86	.38	.51
ALFALFA			.12-	.68	.06	.15
SOYBEANS				.07-	.14-	.24-
CORN					.25	.36
OATS						.81

TABLE 29. CONT.

	GRAIN SORGHUM	ALFALFA	SOYBEANS	CORN	OATS	BARLEY
GREELEY						
WHEAT	.46	.39	.16	.64	.47	.83
GR. SORGHUM		.30	.14-	.69	.62	.61
ALFALFA			.24-	.50	.23	.38
SOYBEANS				.00	.08-	.09-
CORN					.39	.57
OATS						.77
GREENWOOD						
WHEAT	.13-	.31-	.03-	.09-	.63	.71
GR. SORGHUM		.79	.89	.84	.29-	.02-
ALFALFA			.80	.80	.41-	.22-
SOYBEANS				.83	.33-	.08-
CORN					.39-	.08-
OATS						.69
HAMILTON						
WHEAT	.32	.21	.32	.40	.51	.68
GR. SORGHUM		.44	.27-	.74	.56	.41
ALFALFA			.32-	.73	.10	.19
SOYBEANS				.09-	.15-	.12-
CORN					.34	.36
OATS						.80
HARPER						
WHEAT	.23	.17	.44	.21	.29	.68
GR. SORGHUM		.74	.87	.88	.12	.21
ALFALFA			.64	.80	.25	.22
SOYBEANS				.75	.18	.37
CORN					.01	.23
OATS						.48
HARVEY						
WHEAT	.45	.10	.24	.10	.13	.76
GR. SORGHUM		.60	.76	.78	.09-	.39
ALFALFA			.60	.68	.02	.10
SOYBEANS				.82	.35-	.11
CORN					.25-	.00-
OATS						.32
HASKELL						
WHEAT	.45	.31	.29	.48	.66	.78
GR. SORGHUM		.56	.15-	.82	.34	.59
ALFALFA			.09	.58	.01	.26
SOYBEANS				.10-	.21-	.00-
CORN					.40	.60
OATS						.81
HODGEMAN						
WHEAT	.50	.26	.09-	.51	.36	.49
GR. SORGHUM		.54	.10-	.91	.36	.56
ALFALFA			.04	.55	.08	.40
SOYBEANS				.17-	.20-	.19-
CORN					.43	.66
OATS						.82

TABLE 29. CONT.

	GRAIN SORGHUM	ALFALFA	SOYBEANS	CORN	OATS	BARLEY
JACKSON						
WHEAT	.69	.09	.24	.32	.58	.83
GR. SORGHUM		.55	.68	.73	.49	.58
ALFALFA			.75	.58	.28	.13
SOYBEANS				.67	.09	.16
CORN					.18	.36
OATS						.74
JEFFERSON						
WHEAT	.50	.06	.15	.23	.60	.84
GR. SORGHUM		.49	.69	.76	.25	.51
ALFALFA			.69	.64	.02-	.11-
SOYBEANS				.80	.04	.14
CORN					.02	.21
OATS						.71
JEWELL						
WHEAT	.65	.40	.03	.54	.24	.34
GR. SORGHUM		.63	.06	.84	.26	.30
ALFALFA			.38	.85	.30	.02-
SOYBEANS				.34	.27-	.32-
CORN					.07	.07-
OATS						.73
JOHNSON						
WHEAT	.57	.18-	.38	.18	.56	.81
GR. SORGHUM		.48	.78	.80	.16	.47
ALFALFA			.44	.74	.15-	.06-
SOYBEANS				.73	.03	.42
CORN					.13-	.28
OATS						.62
KEARNEY						
WHEAT	.37	.36	.05	.59	.34	.81
GR. SORGHUM		.50	.16-	.84	.31	.49
ALFALFA			.31-	.66	.06-	.38
SOYBEANS				.07-	.10-	.19-
CORN					.22	.55
OATS						.63
KINGMAN						
WHEAT	.28	.10	.01-	.32	.20	.58
GR. SORGHUM		.76	.50	.89	.07-	.26
ALFALFA			.36	.74	.12	.25
SOYBEANS				.40	.13	.03-
CORN					.15-	.19
OATS						.57
KIOWA						
WHEAT	.29	.26	.06	.37	.23	.41
GR. SORGHUM		.82	.12	.95	.17	.13
ALFALFA			.01	.85	.34	.33
SOYBEANS				.09	.01-	.27-
CORN					.11	.16
OATS						.76

TABLE29. CONT.

	GRAIN SORGHUM	ALFALFA	SOYBEANS	CORN	OATS	BARLEY
LABETTE						
WHEAT	.10	.21-	.17	.23	.68	.80
GR. SORGHUM		.51	.81	.82	.05-	.22
ALFALFA			.74	.69	.34-	.15-
SOYBEANS				.86	.09-	.21
CORN					.06-	.22
OATS						.73
LANE						
WHEAT	.18	.48	.23	.45	.35	.49
GR. SORGHUM		.75	.01-	.82	.51	.45
ALFALFA			.09-	.79	.41	.53
SOYBEANS				.01	.01	.18-
CORN					.40	.58
OATS						.82
LEAVENWORTH						
WHEAT	.71	.01	.50	.37	.60	.83
GR. SORGHUM		.38	.81	.73	.44	.52
ALFALFA			.30	.60	.04-	.18-
SOYBEANS				.73	.12	.27
CORN					.16	.26
OATS						.74
LINCOLN						
WHEAT	.43	.35	.03	.46	.46	.36
GR. SORGHUM		.80	.41	.94	.09	.16
ALFALFA			.28	.79	.43	.33
SOYBEANS				.35	.26-	.27-
CORN					.13	.07
OATS						.78
LINN						
WHEAT	.33	.07-	.06	.18	.70	.83
GR. SORGHUM		.55	.81	.89	.13	.37
ALFALFA			.59	.69	.15	.02
SOYBEANS				.77	.12-	.07
CORN					.03	.18
OATS						.85
LOGAN						
WHEAT	.54	.62	.35	.70	.46	.70
GR. SORGHUM		.62	.17-	.85	.52	.63
ALFALFA			.12-	.74	.42	.60
SOYBEANS				.08-	.13-	.17-
CORN					.40	.65
OATS						.77
LYON						
WHEAT	.27	.20-	.02	.12	.68	.80
GR. SORGHUM		.59	.72	.88	.10	.38
ALFALFA			.78	.70	.11-	.02-
SOYBEANS				.80	.17-	.08
CORN					.03-	.22
OATS						.68

TABLE29. CONT.

	GRAIN SORGHUM	ALFALFA	SOYBEANS	CORN	OATS	BARLEY
MARION						
WHEAT	.19	.17-	.28	.06	.21	.81
GR. SORGHUM		.73	.87	.93	.25-	.24
ALFALFA			.69	.75	.04-	.00
SOYBEANS				.85	.28-	.24
CORN					.23-	.15
OATS						.41
MARSHALL						
WHEAT	.48	.11	.05	.27	.52	.55
GR. SORGHUM		.66	.68	.85	.39	.43
ALFALFA			.61	.80	.28	.20
SOYBEANS				.73	.24	.21
CORN					.29	.26
OATS						.76
MCPHERSON						
WHEAT	.29	.12	.53	.28	.03	.62
GR. SORGHUM		.67	.69	.92	.18-	.20
ALFALFA			.60	.75	.10	.30
SOYBEANS				.78	.22-	.27
CORN					.22-	.20
OATS						.42
MEADE						
WHEAT	.35	.25	.15-	.34	.56	.73
GR. SORGHUM		.52	.14	.84	.20	.50
ALFALFA.			.09	.58	.14	.15
SOYBEANS				.18	.00	.01
CORN					.06	.42
OATS						.74
MIAMI						
WHEAT	.60	.16	.33	.21	.67	.87
GR. SORGHUM		.58	.79	.80	.40	.53
ALFALFA			.59	.72	.22	.12
SOYBEANS				.72	.23	.26
CORN					.17	.20
OATS						.74
MITCHELL						
WHEAT	.45	.41	.50	.30	.45	.39
GR. SORGHUM		.76	.41	.87	.17	.16
ALFALFA			.40	.78	.53	.33
SOYBEANS				.39	.17	.13
CORN					.19	.00-
OATS						.81
MONTGOMERY						
WHEAT	.36	.24-	.24	.23	.64	.85
GR. SORGHUM		.29	.78	.86	.16	.32
ALFALFA			.68	.54	.29-	.24-
SOYBEANS				.80	.07-	.12
CORN					.01-	.13
OATS						.74

TABLE 29. CONT.

	GRAIN SORGHUM	ALFALFA	SOYBEANS	CORN	OATS	BARLEY
MORRIS						
WHEAT	.19	.15-	.22	.11	.46	.58
GR. SORGHUM		.64	.81	.89	.22-	.16
ALFALFA			.59	.65	.10-	.09-
SOYBEANS				.74	.27-	.06
CORN					.35-	.08-
OATS						.63
MORTON						
WHEAT	.73	.45	.10	.70	.60	.77
GR. SORGHUM		.38	.28	.74	.71	.76
ALFALFA			.42-	.56	.08	.28
SOYBEANS				.04	.12	.07
CORN					.40	.64
OATS						.71
NEMAHA						
WHEAT	.46	.17	.40	.24	.62	.67
GR. SORGHUM		.69	.88	.87	.41	.47
ALFALFA			.74	.76	.40	.24
SOYBEANS				.78	.48	.40
CORN					.34	.33
OATS						.70
NEOSHO						
WHEAT	.18	.20-	.15	.16	.65	.76
GR. SORGHUM		.60	.82	.87	.08	.28
ALFALFA			.74	.71	.24-	.07-
SOYBEANS				.81	.03-	.21
CORN					.05-	.17
OATS						.67
NESS						
WHEAT	.41	.63	.20	.55	.53	.63
GR. SORGHUM		.77	.10	.90	.44	.46
ALFALFA			.06	.83	.58	.67
SOYBEANS				.09	.12-	.23-
CORN					.54	.62
OATS						.85
NORTON						
WHEAT	.48	.43	.07	.54	.51	.59
GR. SORGHUM		.68	.17-	.87	.33	.48
ALFALFA			.09-	.83	.48	.25
SOYBEANS				.02	.09	.15-
CORN					.38	.34
OATS						.71
OSAGE						
WHEAT	.40	.07-	.14	.16	.46	.78
GR. SORGHUM		.59	.77	.82	.16	.49
ALFALFA			.75	.78	.11-	.04-
SOYBEANS				.74	.01	.20
CORN					.11-	.14
OATS						.64

TABLE 29. CONT.

	GRAIN SORGHUM	ALFALFA	SOYBEANS	CORN	OATS	BARLEY
OSBORNE						
WHEAT	.46	.34	.22	.43	.38	.53
GR. SORGHUM		.86	.04	.93	.33	.30
ALFALFA			.20	.90	.47	.30
SOYBEANS				.04	.22	.02
CORN					.27	.14
OATS						.77
OTTAWA						
WHEAT	.14	.18	.27	.13	.22	.64
GR. SORGHUM		.65	.69	.93	.08	.20
ALFALFA			.54	.73	.27	.01
SOYBEANS				.80	.25	.23
CORN					.15	.20
OATS						.48
PAWNEE						
WHEAT	.32	.28	.27	.39	.34	.50
GR. SORGHUM		.55	.58	.96	.13	.31
ALFALFA			.10	.55	.38	.46
SOYBEANS				.61	.01	.22
CORN					.24	.41
OATS						.80
PHILLIPS						
WHEAT	.60	.46	.05	.56	.36	.62
GR. SORGHUM		.76	.13	.89	.36	.42
ALFALFA			.26	.84	.63	.28
SOYBEANS				.30	.16-	.36-
CORN					.33	.25
OATS						.61
POTTAWATOMIE						
WHEAT	.53	.13-	.31	.01	.51	.71
GR. SORGHUM		.60	.79	.69	.37	.51
ALFALFA			.66	.75	.00-	.00
SOYBEANS				.66	.17	.16
CORN					.07	.21
OATS						.75
PRATT						
WHEAT	.16	.03	.36	.11	.01	.64
GR. SORGHUM		.76	.75	.93	.06	.27
ALFALFA			.54	.81	.31	.22
SOYBEANS				.67	.11-	.34
CORN					.00	.09
OATS						.28
RAWLINS						
WHEAT	.45	.39	.16	.42	.33	.72
GR. SORGHUM		.74	.16-	.86	.55	.51
ALFALFA			.14-	.69	.26	.33
SOYBEANS				.09	.07	.08-
CORN					.49	.32
OATS						.62

TABLE 29. CONT.

	GRAIN SORGHUM	ALFALFA	SOYBEANS	CORN	OATS	BARLEY
RENO						
WHEAT	.43	.37	.40	.19	.11	.72
GR. SORGHUM		.73	.89	.82	.18-	.33
ALFALFA			.62	.67	.03	.39
SOYBEANS				.80	.22-	.31
CORN					.23-	.05
OATS						.46
REPUBLIC						
WHEAT	.54	.25	.19-	.36	.24	.30
GR. SORGHUM		.67	.04-	.77	.25	.38
ALFALFA			.30	.90	.19	.00
SOYBEANS				.26	.23-	.44-
CORN					.11	.04
OATS						.76
RICE						
WHEAT	.27	.31	.11-	.34	.32	.39
GR. SORGHUM		.85	.59	.89	.03	.04
ALFALFA			.61	.92	.14	.18
SOYBEANS				.55	.08-	.15-
CORN					.11	.01
OATS						.69
RILEY						
WHEAT	.44	.04	.32-	.08	.50	.64
GR. SORGHUM		.65	.16	.77	.05	.53
ALFALFA			.35	.77	.03-	.26
SOYBEANS				.27	.22-	.05-
CORN					.13-	.27
OATS						.72
ROOKS						
WHEAT	.45	.30	.10	.39	.43	.69
GR. SORGHUM		.74	.12	.94	.38	.43
ALFALFA			.20-	.73	.27	.32
SOYBEANS				.21	.20	.06
CORN					.26	.29
OATS						.69
RUSH						
WHEAT	.43	.42	.14	.47	.57	.63
GR. SORGHUM		.76	.02-	.95	.32	.35
ALFALFA			.08	.79	.39	.33
SOYBEANS				.14	.09-	.30-
CORN					.38	.32
OATS						.86
RUSSELL						
WHEAT	.36	.32	.06	.33	.31	.57
GR. SORGHUM		.83	.02	.94	.22	.23
ALFALFA			.02	.89	.34	.20
SOYBEANS				.12	.03	.19-
CORN					.23	.10
OATS						.74

TABLE 29. CONT.

	GRAIN SORGHUM	ALFALFA	SOYBEANS	CORN	OATS	BARLEY
SALINE						
WHEAT	.25	.25	.44	.20	.24	.56
GR. SORGHUM		.59	.87	.94	.08-	.23
ALFALFA			.55	.69	.27	.31
SOYBEANS				.85	.03-	.20
CORN					.00-	.22
OATS						.34
SCOTT						
WHEAT	.45	.48	.27	.60	.52	.65
GR. SORGHUM		.72	.11	.85	.29	.49
ALFALFA			.24-	.82	.25	.60
SOYBEANS				.16-	.38	.14
CORN					.30	.59
OATS						.79
SEDGWICK						
WHEAT	.41	.01-	.32	.23	.02-	.72
GR. SORGHUM		.62	.87	.92	.25-	.30
ALFALFA			.63	.74	.03	.19
SOYBEANS				.90	.28-	.14
CORN					.26-	.12
OATS						.35
SEWARD						
WHEAT	.46	.13	.43	.46	.47	.65
GR. SORGHUM		.62	.12-	.82	.39	.58
ALFALFA			.19-	.63	.09-	.05
SOYBEANS				.07-	.03-	.12-
CORN					.22	.43
OATS						.73
SHAWNEE						
WHEAT	.51	.14	.06	.21	.53	.77
GR. SORGHUM		.52	.60	.86	.25	.46
ALFALFA			.52	.74	.32	.21
SOYBEANS				.72	.00	.13
CORN					.10	.23
OATS						.71
SHERIDAN						
WHEAT	.51	.61	.29	.53	.33	.59
GR. SORGHUM		.56	.10-	.94	.36	.50
ALFALFA			.04	.62	.40	.44
SOYBEANS				.02	.06	.06-
CORN					.48	.65
OATS						.74
SHERMAN						
WHEAT	.56	.56	.20	.60	.56	.70
GR. SORGHUM		.76	.12	.85	.52	.59
ALFALFA			.20-	.80	.48	.59
SOYBEANS				.12	.10	.02-
CORN					.44	.66
OATS						.69

TABLE 29. CONT.

	GRAIN SORGHUM	ALFALFA	SOYBEANS	CORN	OATS	BARLEY
SMITH						
WHEAT	.68	.41	.31	.65	.42	.51
GR. SORGHUM		.60	.03-	.87	.41	.54
ALFALFA			.39	.77	.55	.24
SOYBEANS				.17	.30	.05-
CORN					.32	.28
OATS						.72
STAFFORD						
WHEAT	.12	.05-	.25-	.17	.08	.43
GR. SORGHUM		.65	.30	.79	.17-	.19
ALFALFA			.49	.52	.15	.42
SOYBEANS				.12	.22	.13
CORN					.02-	.05
OATS						.58
STANTON						
WHEAT	.40	.22	.12	.64	.64	.80
GR. SORGHUM		.58	.19	.67	.24	.33
ALFALFA			.23-	.47	.06	.08
SOYBEANS				.10	.28	.19
CORN					.42	.53
OATS						.72
STEVENS						
WHEAT	.54	.55	.07	.71	.38	.73
GR. SORGHUM		.59	.03	.70	.56	.65
ALFALFA			.30-	.61	.00	.24
SOYBEANS				.01-	.12	.06-
CORN					.23	.51
OATS						.75
SUMNER						
WHEAT	.39	.05	.38	.20	.17	.69
GR. SORGHUM		.75	.87	.86	.07	.29
ALFALFA			.73	.85	.28	.19
SOYBEANS				.84	.17	.33
CORN					.10	.12
OATS						.49
THOMAS						
WHEAT	.52	.64	.04-	.59	.47	.70
GR. SORGHUM		.80	.10-	.86	.49	.55
ALFALFA			.15-	.78	.42	.55
SOYBEANS				.09-	.00	.11-
CORN					.51	.66
OATS						.73
TREGO						
WHEAT	.23	.32	.02	.40	.25	.53
GR. SORGHUM		.75	.05	.93	.46	.67
ALFALFA			.16	.82	.58	.59
SOYBEANS				.10	.07	.01-
CORN					.41	.58
OATS						.63

TABLE 29. CONCL.

	GRAIN SORGHUM	ALFALFA	SOYBEANS	CORN	OATS	BARLEY
WABAUNSEE						
WHEAT	.31	.21-	.03-	.05	.44	.73
GR. SORGHUM		.58	.75	.83	.04-	.33
ALFALFA			.75	.79	.10-	.06
SOYBEANS				.76	.19-	.04-
CORN					.18-	.05
OATS						.63
WALLACE						
WHEAT	.53	.15	.28	.49	.47	.73
GR. SORGHUM		.32	.24	.84	.51	.46
ALFALFA			.29	.51	.21	.16
SOYBEANS				.42	.12	.21
CORN					.48	.40
OATS						.81
WASHINGTON						
WHEAT	.52	.33	.33-	.28	.39	.33
GR. SORGHUM		.74	.20	.86	.44	.37
ALFALFA			.38	.84	.34	.28
SOYBEANS				.36	.16-	.35-
CORN					.27	.29
OATS						.19
WICHITA						
WHEAT	.28	.46	.08	.54	.58	.77
GR. SORGHUM		.41	.01-	.77	.46	.45
ALFALFA			.07	.73	.32	.45
SOYBEANS				.05	.05-	.08-
CORN					.34	.49
OATS						.80
WILSON						
WHEAT	.08	.32-	.07	.14	.65	.78
GR. SORGHUM		.67	.91	.91	.18-	.10
ALFALFA			.69	.65	.35-	.37-
SOYBEANS				.87	.23-	.05
CORN					.09-	.03
OATS						.70
WOODSON						
WHEAT	.01	.36-	.08-	.05	.66	.82
GR. SORGHUM		.74	.90	.82	.34-	.03
ALFALFA			.75	.69	.42-	.36-
SOYBEANS				.83	.31-	.01
CORN					.17-	.01-
OATS						.63
WYANDOTTE						
WHEAT	.58	.02	.36	.27	.49	.74
GR. SORGHUM		.63	.63	.71	.21	.38
ALFALFA			.41	.57	.01	.01
SOYBEANS				.66	.03	.12
CORN					.15-	.13
OATS						.64

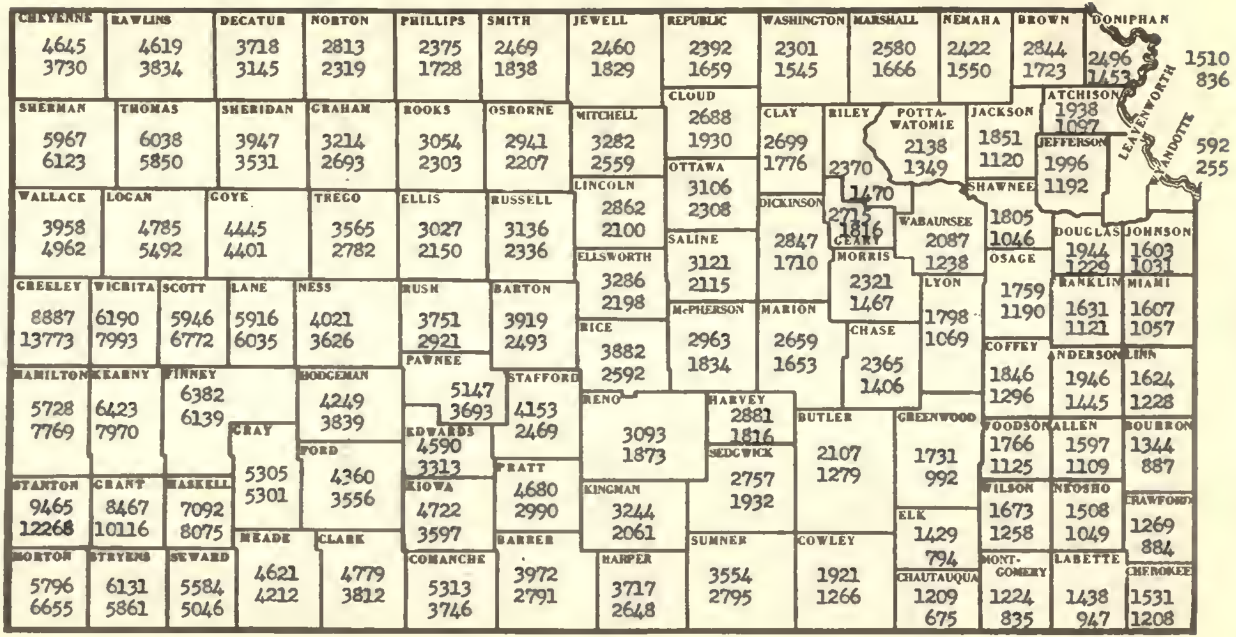

Figure 1. Average value of crops harvested in dollars per farm, 1910-1959, with standard deviation, lower figure.

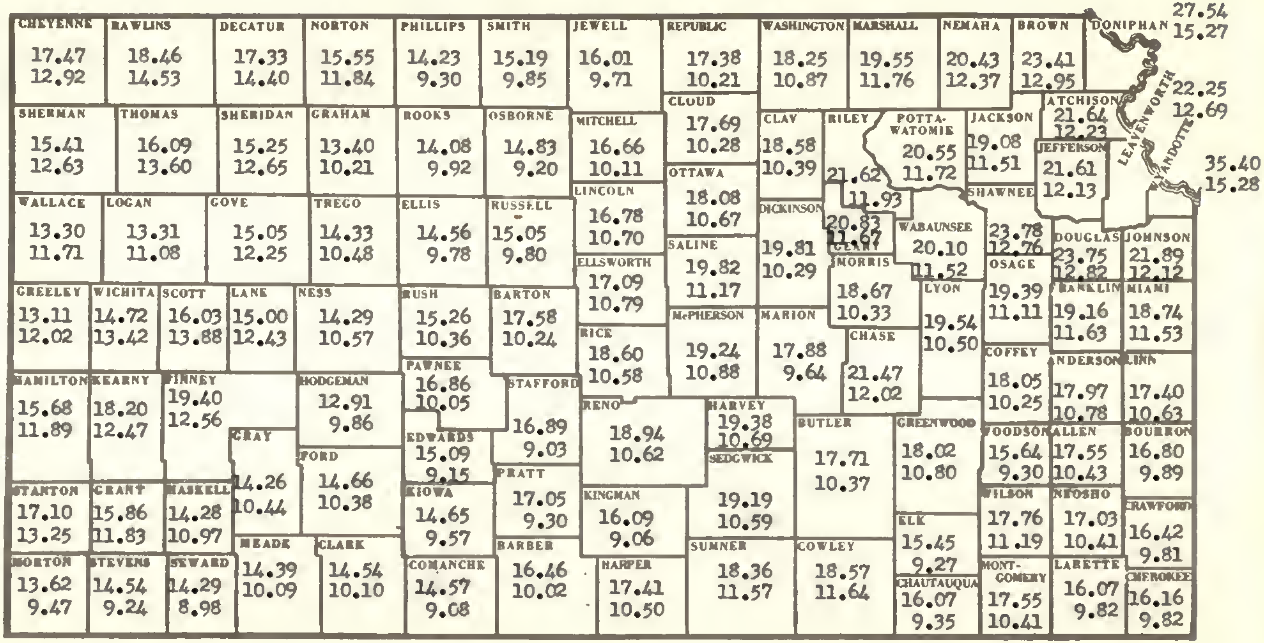

Figure 2. Average value of crops harvested in dollars per acre, 1910-1959, with standard deviation, lower figure.

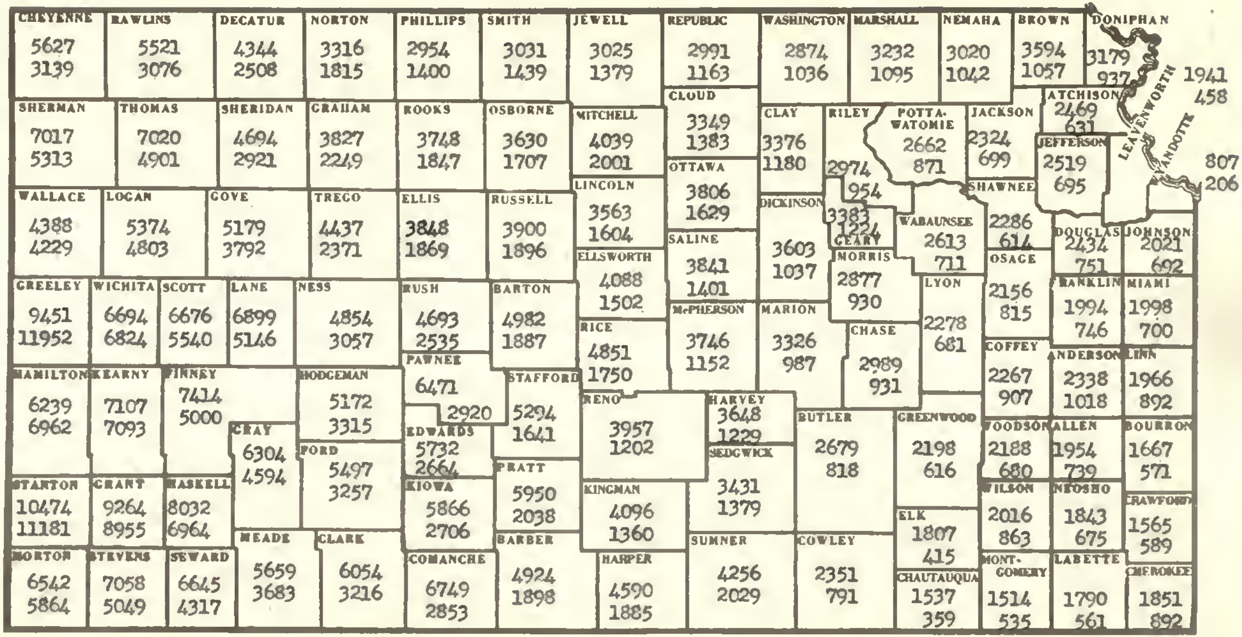

Figure 3. Average indexed value of crops harvested in dollars per farm, 1910-1959, with standard deviation, lower figure.

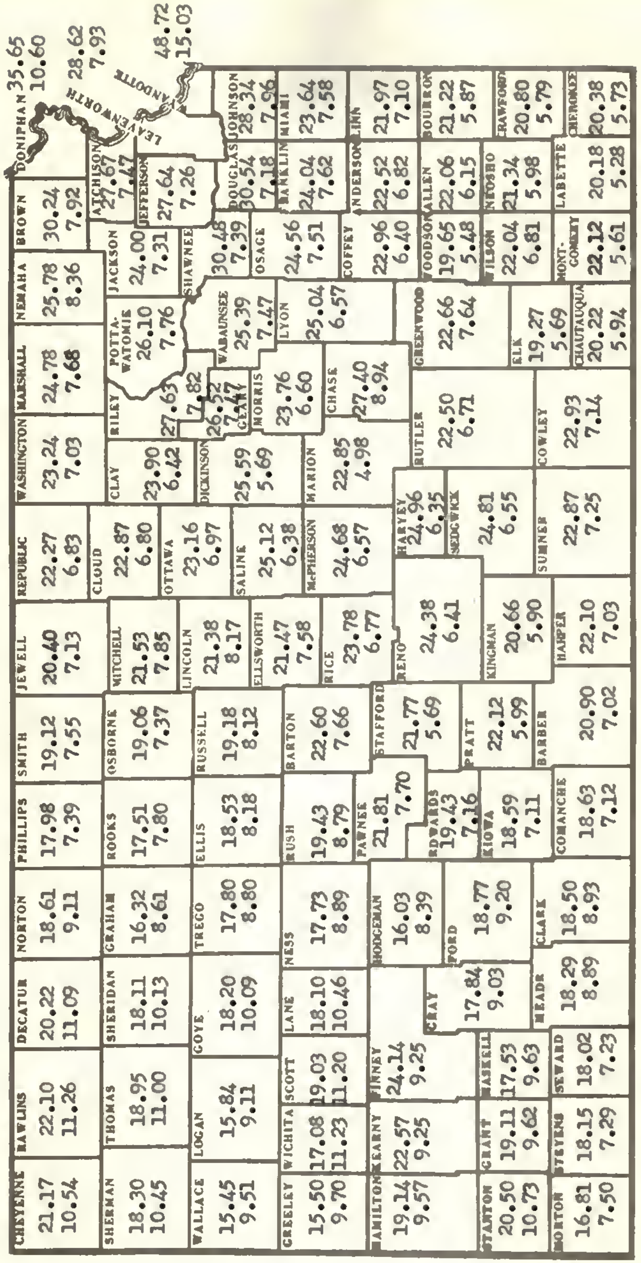

Figure 4. Average indexed value of crops harvested in dollars per acre, 1910–1959, with standard deviation, lower figure.

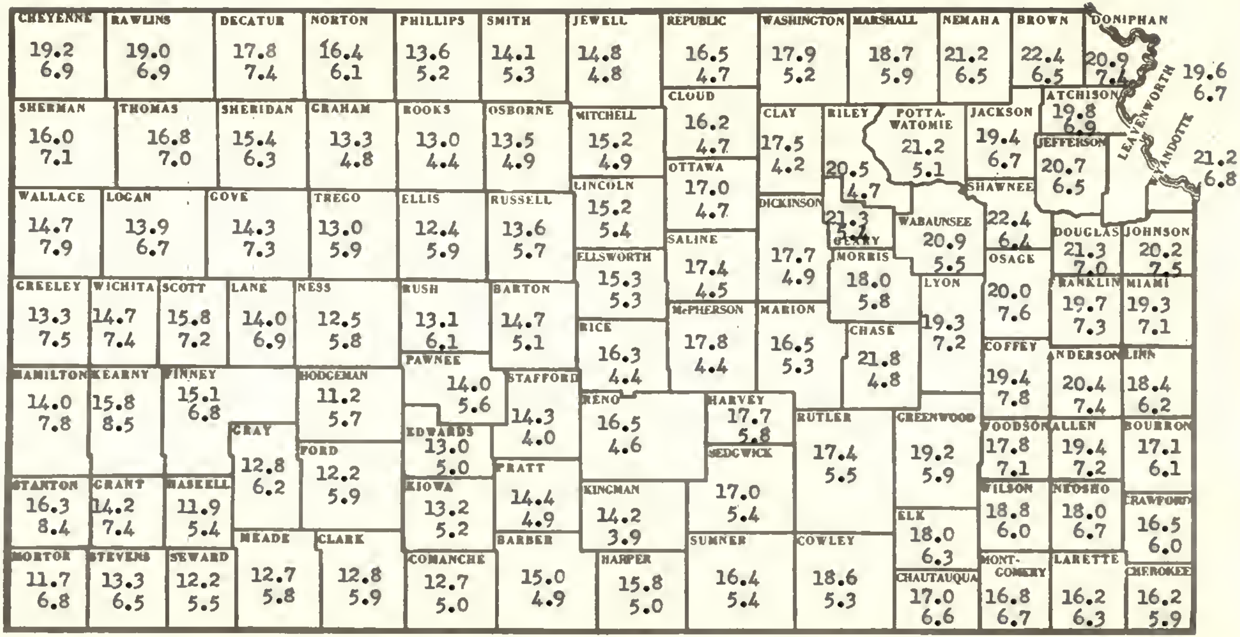

Figure 5. Average wheat yield in bushels per acre harvested, 1937-1959, with standard deviation, lower figure.

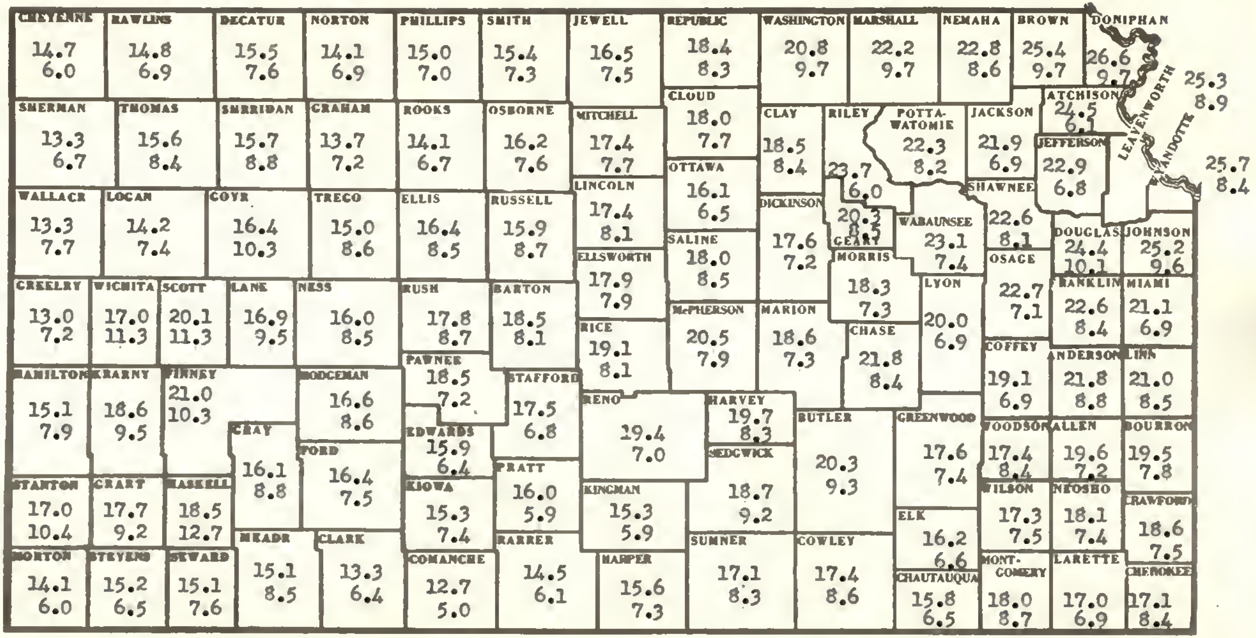

Figure 6. Average grain sorghum yield in bushels per acre harvested, 1937-1959, with standard deviation, lower figure.
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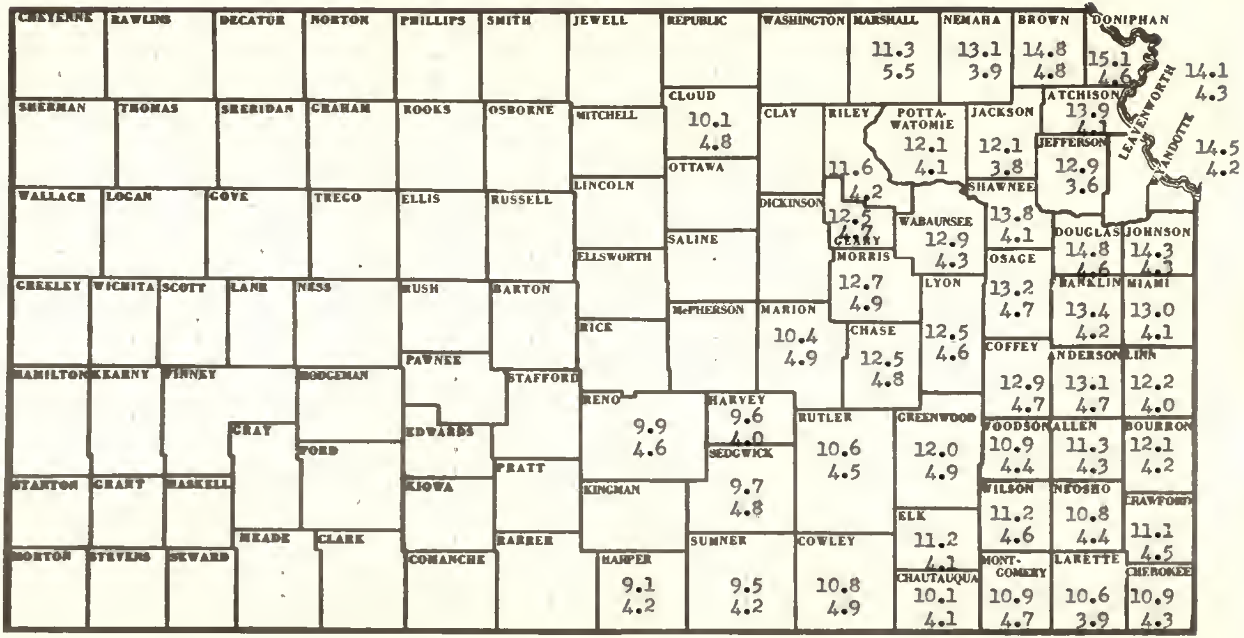

Figure 7. Average soybean yield in bushels per acre harvested, 1937-1959, with standard deviation, lower figure.

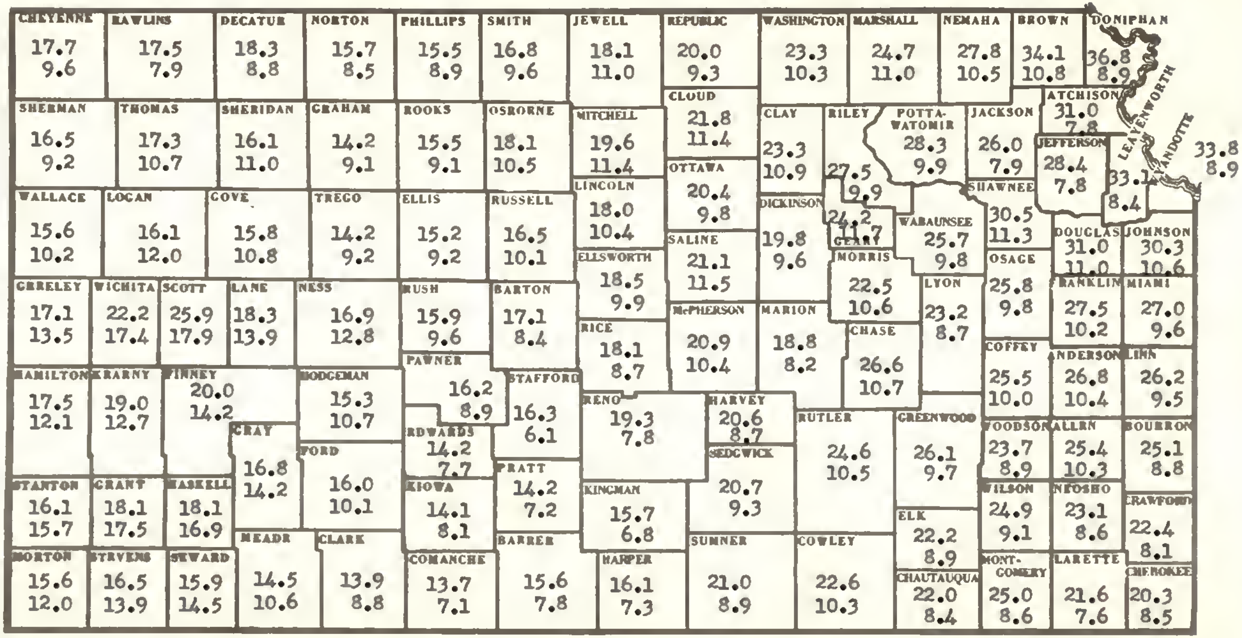

Figure 8. Average corn yield in bushels per acre harvested, 1937-1959, with standard deviation, lower figure.

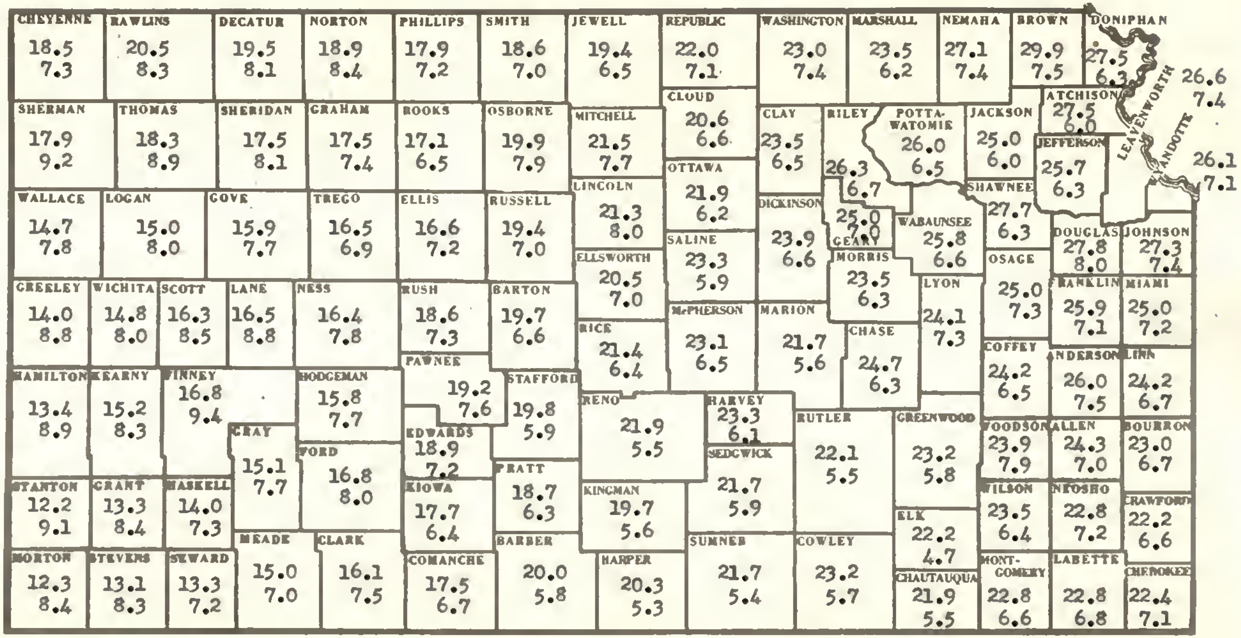

Figure 9. Average oats yield in bushels per acre harvested, 1937-1959, with standard deviation, lower figure.

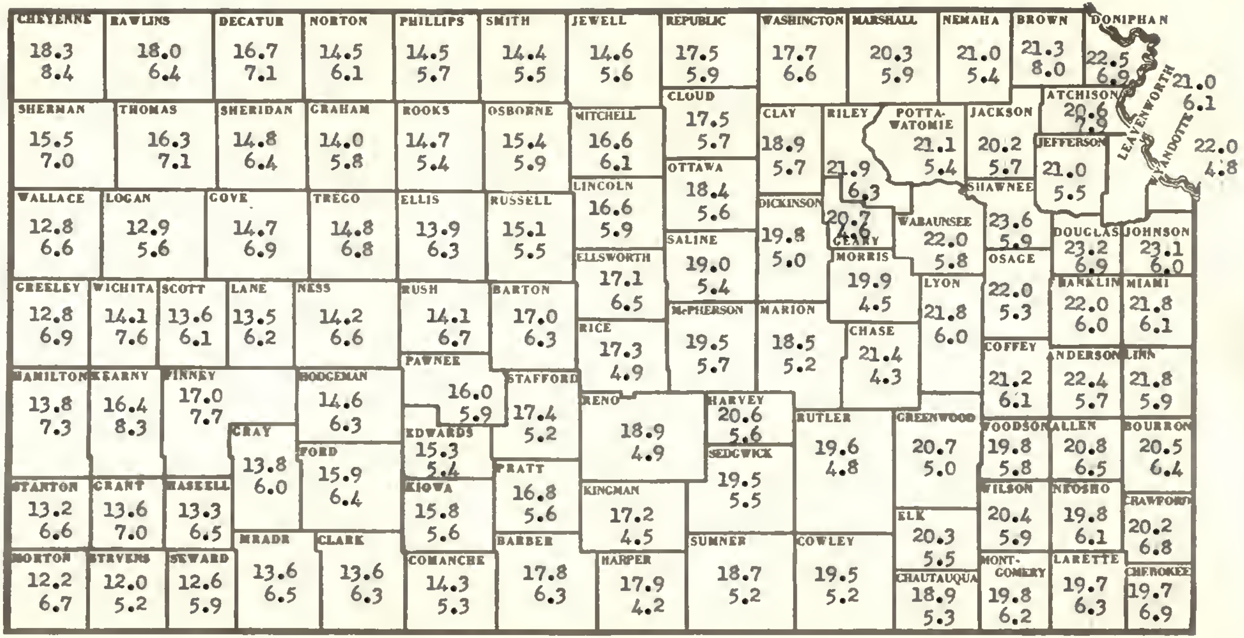

Figure 10. Average barley yield in bushels per acre harvested, 1937-1959, with standard deviation, lower figure.

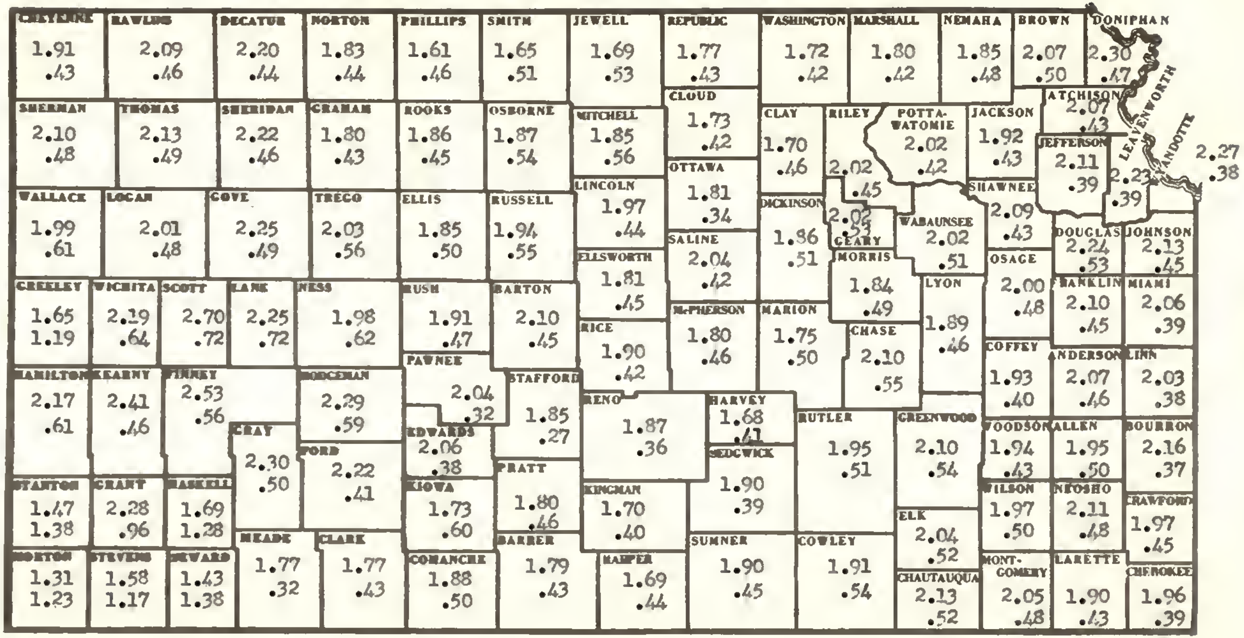

Figure 11. Average alfalfa yield in tons per acre harvested, 1937-1959, with standard deviation, lower figure.

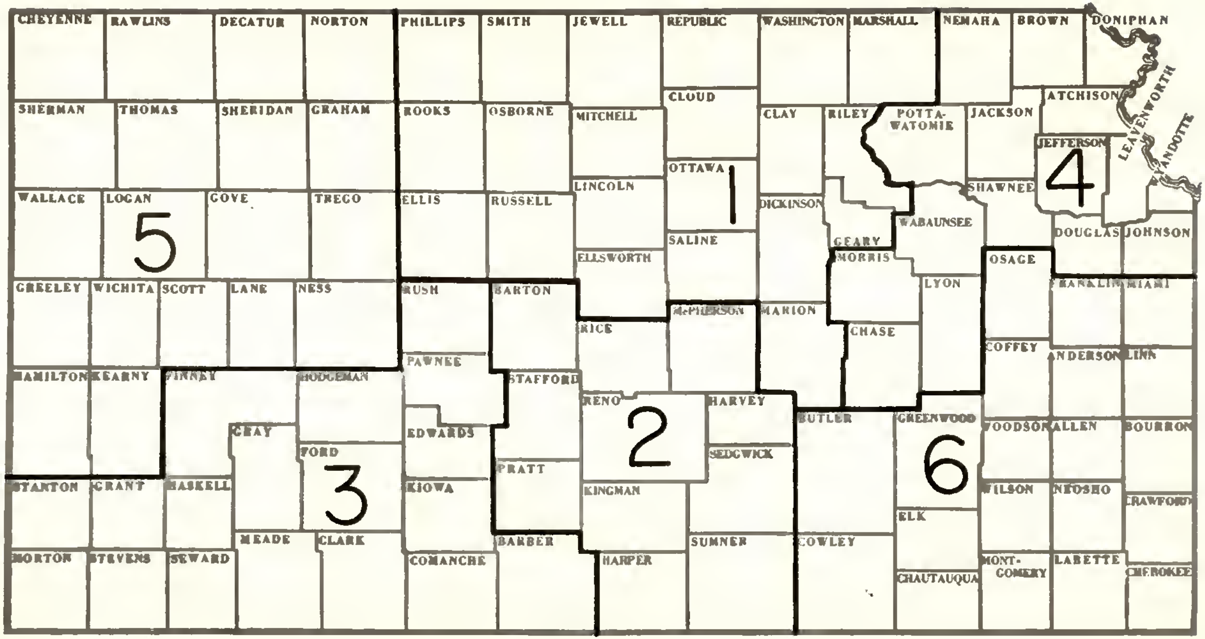

Figure 12. Location of Kansas Farm Management Associations.

AN ANALYSIS OF PRIMARY AGRICULTURAL PRODUCTION IN KANSAS

by

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Farm income in Kansas is subject to wide variation from year to year. Part of the fluctuation of income can be attributed to changing prices and to variability of crop yields. This study is an analysis of primary agricultural production in Kansas.

Variability of crop income and crop yields affects farm business decisions. Returns as well as the variability of those returns affects crop choice and livestock organization. The level and variability of crop income also affects land values, and decisions and incomes of lending agencies, farm implement dealers and other industries which are closely related to agriculture.

This study made no attempt to determine the causes of variability of crop yields, but was designed to measure the level and variability of crop yields and income over a period of time.

There were four objectives of this study: (a) to determine the variability of primary production in Kansas with respect to value and quantity, (b) to determine the variability of crop yields, (c) to determine the correlations between crops, and (d) to determine some of the effects of cultural practices on yield and income variability.

Two sources of data were utilized for the study of variability of farm income and crop production over a relatively long period of time. Records kept by the Statistical Division of the Kansas State Board of Agriculture were available on a county basis. Consecutive records for 287 Kansas farm management association member farms were available for the period 1948-1959.

Access to an electronic computer made it feasible to analyze the data for all counties in the state. After analysis of the data was completed, data-processing accounting equipment was used for listing the results. Photographs of the results were made for inclusion in the thesis.

For the 50 year period 1910-1959, the value of field crops harvested varied more than the aggregate quantity of crops harvested. Variation from year to year of the value of crops harvested was greater for western Kansas counties than for eastern counties.

The value of crops harvested per farm was four to five times higher in western counties than in eastern counties. The value of crops per acre was higher in eastern than in western counties. Therefore, the higher value of crops per farm in western counties was explained more by the size of farm than by the value of crops produced per harvested acre.

Yields of all crops varied considerably from year to year within a county for the period 1937-1959. The level of yields also varied over the state. Yields of most crops were higher in eastern counties. Contrasted to decreased yields as distance from the Missouri border increased, variation of yields increased as distance from the eastern Kansas border increased.

Average yields of wheat, oats and barley when determined per acre seeded were less than yields per acre harvested. Abandonment of wheat was highest in the western third of the state with few seeded acres of wheat not harvested in eastern counties. In contrast to wheat some abandonment of acres seeded to oats and barley was evident in all areas of the state.

The yield of wheat grown on fallowed land was higher than for wheat grown continuously. Where fallowing was practiced variation of wheat yields was reduced compared to variation of wheat grown continuously.

Frequency distributions of crop yields illustrated the kind of difficulty which confronts producers when making production plans. Most crops showed the tendency for annual yields to vary over a fairly wide range with a disproportionate number of years with low yields.

Crop yields showed a high degree of correlation. Highest correlations were shown by corn and grain sorghum. Small grain crop yields also tended to be significantly correlated. Soybean yields were correlated with grain sorghum and corn yields. Oats yields were correlated with fewer crops and in fewer counties than was shown by any other crop.